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United States
Department of
Agriculture

Economic
Research
Service

AIS-55
December 1994

Agricultural Income and Finance

Situation and Outlook Report

Farmers' Use of Debt Repayment Capacity Increases in 1994 and 1995

Debt use exceeded repayment capacity during 1980-82

Ratio of actual debt to debt that could be repaid from current income.

Contents

Summary

USDA is releasing its first forecasts on farm income for 1995 and revisions for 1994. In 1995, net cash income from farming is expected to range from $49-$53 billion, compared with a forecast of $51 billion for 1994. Net farm income is forecast to range between $33 and $43 billion in 1995, down from the latest 1994 forecast of $45 billion. The last year net farm income fell below the lower end of the 1995 forecast was 1986. Cash receipts from farm marketings are expected to range between $172-$180 billion in 1995, compared with an estimate of $178 billion for 1994. Livestock receipts have more potential to decline in 1995 than crop receipts because cattle and hog production are expected to remain near 1994's record level. Direct government payments are forecast to be $10-$12 billion in 1995, representing a 40-percent increase over 1994's current forecast of $8 billion. Farm production expenses are expected to remain fairly stable in 1995. Farm business debt is anticipated to rise above $150 billion by the end of 1995, the third consecutive annual increase and the highest level of debt since the end of 1986. Farm assets are expected to range from $912-$922 billion in 1995, which represents no change from the current 1994 forecast.

- Abundant supplies of red meats will cause producers who specialize in hog or cattle production to absorb the largest income declines over the 1994-95 period. Higher government payments should help stabilize net incomes of cash grain producers.

- Farmers are expected to utilize their available credit line more fully in 1994-95. Actual debt is projected to be over 60 percent of the debt that could be supported, given the current income forecasts, up from less than 48 percent in 1993 and 57 percent in 1994.

- The expected rise in loan balances, coupled with higher interest rates, may weaken the financial position of borrowers, particularly those with variable interest rate loans.

- Despite rising loan-to-deposit ratios, agricultural banks should enter 1995 well capitalized and report ample funds to meet credit needs of qualified borrowers.

- Anticipated increase in off-farm earnings will help compensate for declines in farm business income leading to relatively stable farm household incomes, on average, over the 1994-95 period.

Agricultural Production High In 1994, Contributing To Lower 1995 Farm Incomes

Historically high levels of agricultural production in 1994 will tend to depress prices in the first half of 1995. An increase in the set-aside acreage for some commodities will likely lower crop production in 1995, resulting in lower net farm income.

During 1994, the nation's farmers produced record crops of corn, soybeans, cattle, sugar, and rice. Livestock producers provided an abundant supply of meat, including a record amount of pork and the largest amount of beef in 17 years. As the end of this bounteous year approaches several questions arise about the financial outlook for farmers and ranchers in the coming year such as: Will the large supplies of commodities produced in 1994 depress prices and farm incomes in 1995? and, will changes in expenses play as important a role in the farm financial outlook as changes in expected receipts?

Net Cash and Net Farm Income Forecasts for 1994 Are Now Below Ranges Published in September

After reaching a record $58.5 billion in 1993, net cash income from farming is expected to fall to $51 billion in 1994, the lowest level since 1986. Net cash income is the cash operating income generated from farm business transactions which farmers can use to support their families, pay off farm debt, pay taxes, or purchase equipment. (Appendix tables 1 and 3 show how USDA calculates its income measures). The 1994 net cash income estimate is below the $53-$57 billion forecast range published in September, largely because of lower-than-expected livestock receipts (see box). USDA forecasts that in 1995 farm owners will have available from $49-$53 billion in net cash income.

Net Farm Income May Decline in 1995

Net farm income is a broader measure of the income farming produces than net cash income, because it includes adjustments to cash transactions to account for the value of products consumed on farm, inventory, and the value of the service provided by farm housing. Expenses that did not involve a cash transaction in a given year, such as capital consumption, are also included in the net farm income calculation. Net farm income should range from $33-$43 billion in 1995, down from $45 billion for 1994. The last year net farm income fell below the lower end of the 1995 forecast range was 1986. The 1994 net farm income forecast, as was the case with net cash income, is below September's published forecast range.

Recent Changes in USDA's 1994 Forecasts for Livestock Receipts Are the Main Reason for Lower Forecasts of 1994 Farm Income

The main reason that the revised 1994 net cash and net farm income forecasts fall below the September forecast is that through the end of 1994 cash receipts for livestock, especially red meats were lower than anticipated. The current 1994 forecast for red meat receipts is about $48 billion, the lower end of the September forecast (see AIS-54). Fall production reports showed larger-than-expected livestock production and correspondingly lower prices. Because there are no Government programs for most livestock commodities, government farm payments do not rise to compensate for part of the income reduction as is usually the case for crops.

Livestock Receipts Have More Potential To Decline Than Crop Receipts in 1995

Cash receipts from commodity sales account for about 90 percent of farm gross cash income. In 1995, crop receipts should range from $88-$92 billion compared with the 1994 forecast of $90 billion. Livestock receipts have more potential to decline in 1995 than crop receipts, partly because 1995 livestock production is forecast to remain around record levels. Livestock receipts could range from $84-$88 billion in 1995 compared with the $88 billion forecast for 1994.

Taking a look at several important commodities will help explain the projected changes in cash receipts. Among crops, corn generates the most cash receipts, forecast to range from $14-$16 billion in 1995 compared with $14.9 billion in 1994. How will the 1994 record 10 billion bushel corn crop influence 1995 cash receipts? Farmers usually sell about half their corn in the year they produce the crop and sell the remainder the next year. So, the large 1994 corn crop should keep corn prices in early 1995 lower than for the same period in 1994, pushing corn cash

receipts towards the lower end of the forecast range. A return to more normal yields (125-130 bushels) and the recently announced 7.5 percent APR requirement should lead to lower corn production in 1995. A significant drop (2-4 billion bu.) in production or unforeseen increases in demand could help boost prices in the latter half of the year, pushing corn cash receipts toward the upper end of the forecast range.

Soybeans account for the second largest amount of crop cash receipts, forecast from $11-$13 billion in 1995 compared with $13.3 billion in 1994. As with corn, farmers sell around half of their soybean crop the year after it is harvested. So, the 1994 record 2.5 billion bushel soybean crop will tend to dampen 1995 soybean prices, which might be 25 percent lower in the first half of 1995 than for the same period in 1994. Also, in response to large supplies, soybean production could decline in 1995. The combined effect of lower prices early in 1995, and lower production than currently expected, could push soybean cash receipts toward the lower end of the forecast range.

Hog cash receipts should range from $9-$10 billion in 1995 compared with $10 billion in 1994. Record 1994 pork production has kept farm prices for hogs weak, especially in the last quarter of 1994. Despite these low prices, producers' reported farrowing intentions indicate that 1995 could be another record year for pork production, keeping 1995 hog prices low, especially in the first three quarters. In 1995, hog cash receipts will tend toward the lower end of the forecast range if production is not curtailed faster than currently suggested by farrowing intention reports.

Cash receipts for cattle could range from $35-$40 billion in 1995 compared with $38 billion in 1994. Beef production in 1995 is expected to surpass 1994 despite the annual average farm price for cattle in 1994 being the lowest since 1987. Forage conditions have remained good, and the 1994 hay crop was the best since 1986, reducing the need for supplemental feed, and encouraging cow-calf producers not to reduce their herds.

Higher Direct Government Payments to Producers of Feed Grains Are Expected in 1995

Direct government payments represent the second largest component of gross cash income. These payments are forecast at about $8 billion for 1994 and $10-$12 billion for 1995, with the largest expected increase being for feed grains. As market prices for feed and food grains decline, direct government payments tend to increase. Because farmers receive a portion of payments in the year after they produce the crop, low 1994 feed grain prices partially result in the forecast of increased 1995 direct government payments.

Commodity Inventories Likely To Decline in 1995

USDA adjusts net farm income for inventory changes so that it will reflect production from one year (see line titled "inventory adjustment" in appendix table 1). The inventory adjustment subtracts the value of commodities produced in the previous year and sold during the current year from cash receipts and adds in the value of unsold and unused commodities produced in the current year. For 1994, the inventory adjustment is forecast at $5 billion while the 1995 forecast indicates an inventory adjustment ranging from negative $3 billion to a positive $1 billion.

A combination of low beginning 1994 inventories and high production accounts for the large positive 1994 inventory adjustment. Flood and drought reduced crop production in 1993. This reduced production was the main reason for the low 1994 beginning of the year inventories. Record 1994 crops helped boost ending year inventories, since much of the production will not be sold until 1995. These inventories should decline in 1995 as farmers market the remainder of the 1994 crop. However, farmers will have the opportunity to place enough feed grains in the Farmer Owned Reserve to reach a maximum of 900 million bushels. Also, lowered price expectations stemming from the large 1994 crop and increased set aside requirements will likely decrease 1995 plantings -- further contributing to inventory declines and reducing 1995 expected net farm income. The largest negative inventory changes in 1995 could be for corn and soybeans.

Stability Forecast for 1995 Expenses, But Interest and Fertilizer Bear Watching

Expense forecasts indicate less dramatic changes between 1994 and 1995 than was the case with incomes. Cash expenses are forecast at $144 billion for 1994 while 1995 cash expenses could range from $140-$148 billion. Total production expense, used in calculating net farm income, is forecast at $163 billion for 1994 and could range from $160-$168 billion in 1995.

Record 1994 commodity production will help livestock producers by lowering prices for grains and feeder livestock. To illustrate this, in 1992, grain expense was about 25 percent of cash expenses for hog producers while feeder pigs accounted for about 7 percent (ECIFS 12-3). Overall, cash expenses for feed, including grains, and feeder livestock were about 25 percent of 1994 cash expenses.

Rising interest rates could help push 1995 cash expenses toward the upper end of the forecast range. Farmers that need short term loans to cover operating expenses or that have variable rate loans would be the most affected by rising interest rates. Interest expenses made up about 8 percent of 1994's cash expenses. See the following section on debt for a more in-depth discussion of the possible effects of rising interest rates on farm income.

Figure 1
Declines in Cattle, Hogs, and Oil Crops Receipts
Drive Changes in 1995 Farm Marketings

Billion $
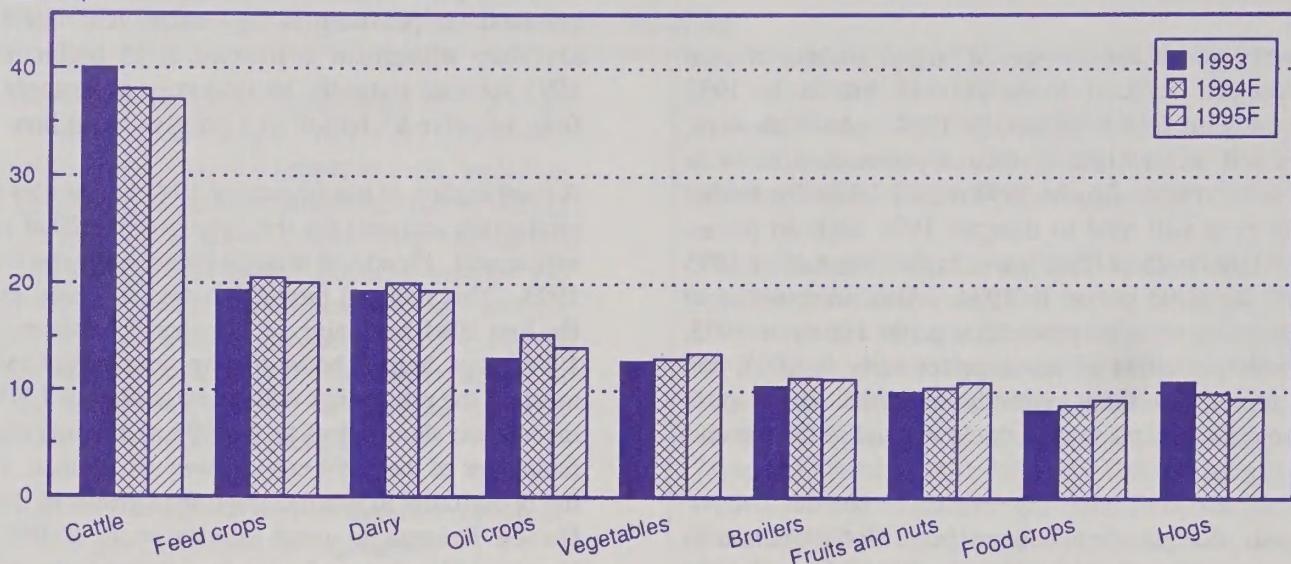
Figure 2

Government Payments Rise in 1995 Following the 1994 Decrease; Changes in Payment Level Reflect Multi-Year Disbursements

Billion $
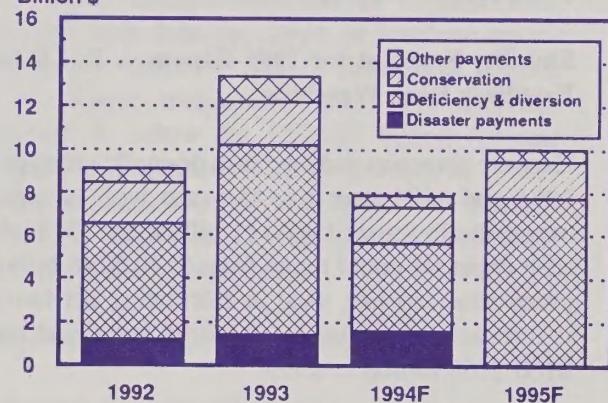
Figure 3
Farm Production Expenses To Remain Steady Through 1995, Despite Modest Increases in Inflation 1/
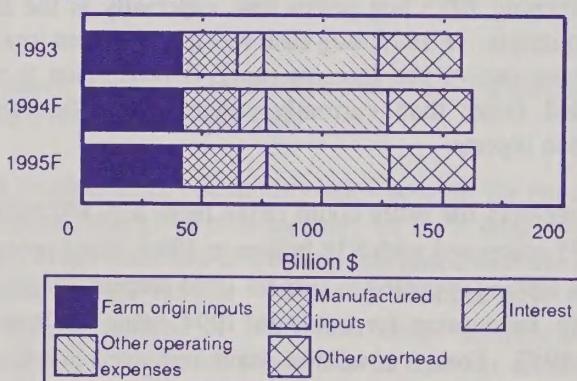
1/ See appendix table for items that comprise the expense components.

Figure 4
Net Farm Income Declines in 1995

Billion $
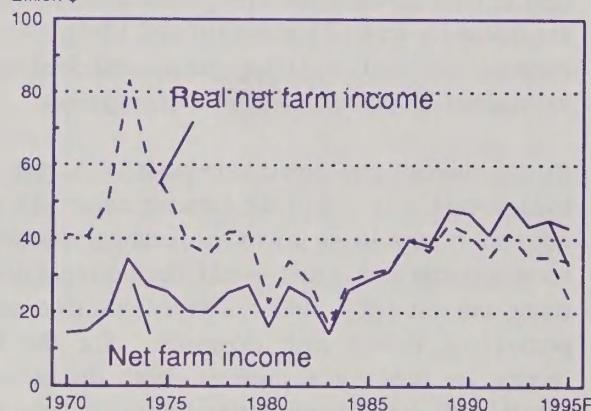
Figure 5
Net Cash Income Stable in 1995

Billion $
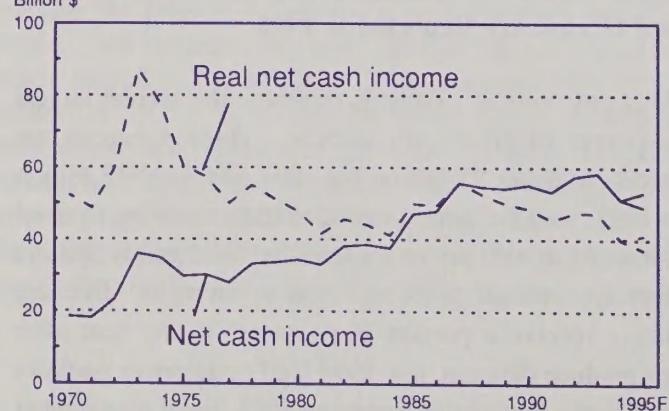
Tight fertilizer supplies may help push cash expenses toward the upper end of the forecast range. Heavy global demand for fertilizer may mean higher prices for fertilizer in 1995. Fertilizer expenses made up about 6 percent of 1994 cash expenses and 23 percent of the cash expenses for producing corn in 1992 (ECIFS 12-3).

Net Cash Income Expected To Decline in 1995 On All Types of Livestock Farms

Looking at forecast changes in net cash income by type of farm further highlights the influence that declining livestock cash receipts could have on 1995 farm incomes. Without major shifts in farmers' choice of commodities to produce, farms where half or more of the value of production comes from livestock are expected to have declines in 1995 net cash income, while those farms where half or more of the value of production comes from crops should have steady or increasing net cash income (see appendix table 6). The most pronounced expected declines are for farms from which half or more of value of production is

from meat animals or dairy products.

Farm Household Income Expected To Remain Steady

Average farm household income is expected to remain steady through 1995, as average off-farm income increases slightly in 1994, compensating for changes in farm income to households. (see appendix table 2). Average off-farm income is expected to be between $34,600 and $36,600 in 1995, while average farm income is forecast at $4,200 to $5,000. Most farm households receive some income from off-farm sources, and the majority of households associated with small farming operations are more dependent on off-farm income than income from their farming activities. Off-farm income forecasts are based on projections of the wage compensation index for nonfarm employment, as most off-farm income is earned income from off-farm jobs. The use of the latest index has revised the projections of off-farm income to an increase of 3.6 percent from 1993 to 1994, with a modest increase in average off-farm income also expected in 1995.

Farm Debt Rise Expected Through 1995

Farm debt may rise 2 to 3 percent in 1995, following a 4-percent increase in 1994.

Farm business debt is anticipated to rise above $150 billion by the end of 1995, its highest level since 1986. The expected increase of $3-4 billion during 1995 will mark the third consecutive year of rising debt. The expansion in outstanding loan balances in 1995 follows a projected debt increase of over $6 billion in 1994. The 4-percent rate of growth in farm debt in 1994 represents the largest annual percentage increase in outstanding loans since 1981.

The recent rise in farm debt is a cause of concern but not alarm. Reduced income levels, combined with increased indebtedness and rising interest rates, suggest that a larger number of operators will have less income available to meet higher principal and interest payments on their loans. Affected farmers may experience difficulty in meeting their debt service requirements.

The use of debt provides a valuable source of capital which can lead to improved productivity and higher profits. The recent rise in loan balances can be at least partially attributed to farmers' positive view of the future of the sector, as evidenced by borrowing to finance strong machinery sales. The number of tractors purchased is forecast to increase 6 percent in 1994. Farmers appear to be willing to borrow to invest in replacement of their aging capital stock. Farmers' demand for machinery may have been influenced by the availability of credit at relatively low interest rates, especially during the first half of 1994.

Farmers Use of Repayment Capacity Rises

Farmers are expected to use their available credit lines more fully in 1994 and 1995. Lenders generally require that no more than 80 percent of a loan applicant's available income be used for repayment of principal and interest. For farm operators, the income available for debt service (measured as net cash income plus interest expense) can be used to determine the maximum loan payment that farmers can handle. Given current market interest rates and an established repayment period, the maximum feasible debt that the farmer could carry with this loan payment can be determined. Using current bank interest rates and a 7-year repayment period, maximum feasible debt conceptually measures the line of credit that could be available to farmers. See chart on the cover for figures.

Farm debt repayment capacity use (actual debt expressed as a percentage of maximum feasible debt) effectively measures the extent to which farmers are using their

available lines of credit. This ratio indicates that, in 1995, farmers are expected to use over 60 percent of the farm debt that could be supported by their current income from farming. Use of debt repayment capacity is up from less than 48 percent in 1993 to 57 percent in 1994. In 1995, it is expected to reach its highest level since 1986, driven by the combined effects of lower income available for debt service, rising interest rates, and higher debt levels.

Upper Midwest Farmers Most Vulnerable

As reported in the September issue of this publication, USDA's Farm Costs and Returns Survey shows that the financial position of U.S. farms and ranches began to weaken in 1993. Among commercial farms (those with annual gross agricultural sales of at least $40,000) the portion of operations classified as financially vulnerable (negative net farm income and debt/asset ratio greater than 0.4) rose to 6.3 percent from 1992's 3.9 percent. The share of farms in this vulnerable financial condition was highest in the Northern Plains (10.3 percent), Lake States (6.5 percent) and Corn Belt (5.7 percent). Current income and balance sheet projections suggest that the financial position of these producers is not likely to improve in 1994 or 1995.

Debt Growth Rate Accelerates

The recent increases in farm debt are relatively small compared with annual debt changes during the 1970's, when outstanding loan balances grew at an average annual rate of over 12 percent. The rapid growth in use of debt financing during the 1970's is often cited as a cause of the mid-1980 farm financial crisis.

Figure 6
Annual Increases in Farm Debt in 1994 and 1995 Are Small Relative to Those of the 1970's
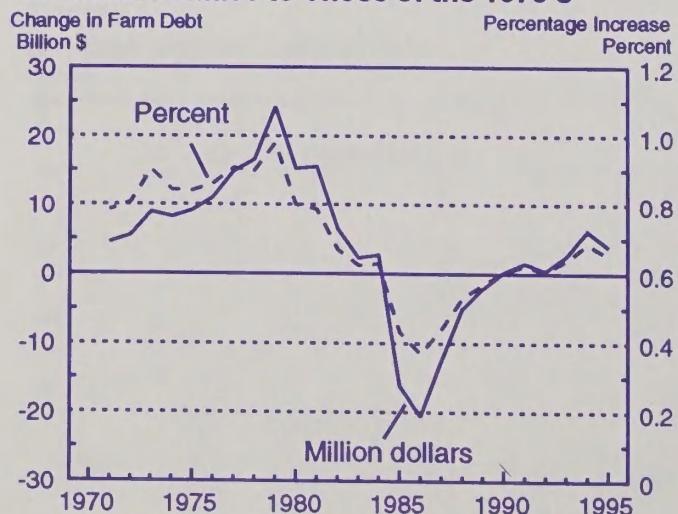
Expanded use of credit resulted in farm business debt increasing from less than $50 billion in 1970 to a high of almost $194 billion in 1984. Debt declined during the subsequent financial crisis, falling to $137 billion by the end of 1989. Year-end loan balances remained within the $137-$142 billion range from 1989 through 1992, trending slowly upward at an average annual rate of less than 1 percent. Farmers appear to have used relatively high incomes generated during 1989-92 to minimize borrowing and improve their balance sheets.

The debt growth rate has accelerated since 1992, rising to almost 2 percent in 1993. This rate of increase, based on preliminary projections, is expected to rise to 4 percent in 1994, and to moderate to less than 3 percent in 1995. Debt levels at year-end 1995 are expected to stand about $10 billion above those of 1993.

Lower Income, Rising Debt, Localized Financial Stress

While 1995 promises to be a difficult year for some farmers, a recurrence of widespread farm financial distress does not appear to be looming on the horizon. Overall, the farm sector's financial health is much stronger now than it was in the early 1980's. Agricultural banks and the Farm Credit System, as well as farmers, have experienced several profitable years. In general, farmers and their lenders are financially sound entering 1995.

Operators most likely to experience financial stress in 1995 are livestock producers and those Midwest farmers who have not yet fully recovered from the 1993 flood.

Farmers unable to harvest normal crops in 1993, particularly those lacking stocks stored from previous years, did not share in the relative prosperity resulting from higher prices. Some may have been forced to seek extensions for repayment of their 1993 loans. These operators then entered 1994 with higher than desirable outstanding loan balances. They have seen their 1994 income fall below expectations as lower prices have accompanied the increased production of most commodities. These producers may experience loan repayment difficulties in 1994.

The financial condition of these farmers will not improve dramatically in 1995, as relatively low prices reduce receipts and decrease inventory values, and expenses increase for many inputs. Indebted farmers will find that rising interest expenses, driven by increased debt levels and higher interest rates, will contribute to increased expenses and will result in a worsening financial position.

Banks Show Rapid Growth in Farm Loans

Farm debt held by banks is expected to increase by over 4 percent in 1995, following a rise of almost 9 percent in 1994. Bank loans secured by farmland increased by over 7 percent in 1994, while nonreal estate farm loan balances rose over 9 percent. Bank farm loans outstanding have grown at an average annual rate of over 5 percent during 1988-94.

Agricultural banks will enter 1995 well capitalized and report ample funds to meet the credit needs of qualified borrowers. The rising loan balances and high loan-to-

Table 1--Farm debt increased by almost $6 billion in 1994, and is expected to rise in 1995.

Lender	1984	1987	1990	1993	1994P	1995F
		------Million dollars-------			--Billion dollars--	
Real estate	106,697	82,398	74,138	75,977	77	77 to 82
Farm Credit System	46,596	30,646	25,719	24,872	25	24 to 26
Farmers Home Administration	9,523	9,430	7,576	5,834	5	4 to 6
Life insurance companies	11,891	9,355	9,631	8,980	9	8 to 11
Commercial banks	9,626	13,541	16,158	19,580	21	21 to 23
CCC storage facility	623	46	7	0	*	*
Individuals & others	28,438	19,380	15,047	16,711	17	17 to 19
Nonreal estate	87,091	62,012	63,229	65,928	71	70 to 75
Commercial banks	37,619	27,589	31,267	34,939	38	38 to 42
Farm Credit System	18,092	9,384	9,848	10,540	12	11 to 13
Farmers Home Administration	13,740	14,123	9,374	6,239	6	4 to 6
Individuals & others	17,640	10,916	12,740	14,210	15	15 to 17
Total debt	193,788	144,410	137,367	141,905	148	148 to 154
Farm Credit System	64,688	40,030	35,567	35,412	36	35 to 39
Farmers Home Administration	23,263	23,553	16,950	12,073	11	10 to 12
Commercial banks	47,245	41,130	47,425	54,519	59	60 to 64
Life insurance companies	11,891	9,355	9,631	8,980	9	8 to 11
Individuals & others	46,701	30,342	27,794	30,921	32	33 to 35

Farm business debt outstanding as of December 31. * = Less than $500,000.

deposit ratio indicate the recent strength of both farmers' loan demand and bankers' willingness to provide credit.

However, at mid-year 1994, agricultural banks reported an average loan-to-deposit ratio of .62. This measure, up from .55 during 1990-92, has reached its highest level since the early 1980's. Further increases in the loan-to-deposit ratios might lead to reduced farm credit availability, as some banks reserve their more restricted supply of loanable funds to their most credit-worthy borrowers.

While banks reported lower delinquency and charge-off rates at mid-year 1994, bank officers responding to surveys conducted by various Federal Reserve Banks indicate that problems might be building, as evidenced by slightly lower loan repayment rates and slightly higher numbers of renewals and extensions. These bankers also report that both demand for loans and fund availability are generally higher. These factors, together with the current projections for relatively low net income, suggest that some farmers may experience repayment difficulties in 1995.

Farm Credit System Nonreal Estate Loans Rise

Farm business debt owed to the Farm Credit System (FCS) is forecast to increase less than 2 percent in 1995, following a rise of less than 3 percent in 1994. Preliminary projections indicate that FCS nonreal estate loans will increase over 11 percent in 1994, offsetting an expected 1-percent decline in farm mortgage loans. Despite their relatively slow growth in loan volume in recent years, FCS institutions have streamlined through mergers and have profited from improved net interest margins. They are well positioned to be competitive in the farm credit market in the future.

Rising Interest Rates To Affect Farmers

The recent interest rate increases created by the Federal Reserve Board, while generally raising all current market interest rates, have not produced a simultaneous proportional rise in farm interest expenses.

Total farm business debt is expected to reach $148 billion by the end of 1994. ERS analysis suggest that a 100 basis point increase in market interest rates raise farm interest expenses by almost $1.5 billion, reducing net farm income by that amount. However, the actual increase in interest expenses is expected to be substantially less.

Changes in current market interest rates are not reflected immediately in farm interest expenses due to a variety of factors. First, interest rates on new agricultural loans do not respond instantaneously to changes in general market interest rates. ERS research suggests that changes in the

3-month T-bill rate produce changes in commercial bank interest rates on new farm loans, but the change is less than proportional and occurs with a lag of about one quarter. Interest rate changes following a change of 100 basis points in the 3-month T-bill rate were about 71 basis points on new farm nonreal estate loans, and about 66 basis points on new farm real estate loans.

Additionally, these farm interest rate responses to market rate changes refer to rates on new loans. Interest expenses are based on average interest rates on all loans outstanding, rather than rates on new loans only. While over 75 percent of all bank loans are made on variable interest rates, such loans can only periodically be adjusted to reflect new market rates. There is a lag between the date of the rate changes for new loans and the adjustment date of the variable rate loan.

Finally, total interest expense also depends on the level of debt outstanding. While the current projection is for rising debt balances through 1995, the increase in interest expenses could be mitigated if farmers respond to higher market interest rates by reducing their demand for new loans.

Net household income for some farm operators may increase as a result of rising interest rates, despite the anticipated rise in farm sector interest expense in 1994 and 1995. Data from the FCRS show that approximately 30 percent of all farm operators, including 13 percent of those with sales greater than $250,000, reported that their 1993 income from interest and dividends was greater than interest expense on their farm operations. Interest and dividend income are not reported separately in the FCRS, so the source of this income cannot be determined--it could be interest on bank CDs or income from stocks, bonds, or mutual funds. The impact of interest rate changes on the value of the investments producing this income cannot be determined. In general, these farmers, as net creditors to the rest of the economy, may benefit from rising interest rates.

Farm Assets and Equity To Be Little Changed In 1995

The first 1995 forecast for farm assets is $912-$922 billion, which represents no change from the current 1994 forecast of $917 billion. Real estate assets, which account for nearly three-quarters of total farm assets, are expected little change in 1995 as a slight rise in value per acre may be more than offset by a continual annual decline of about 0.5 percent in land in farms. Depressed prices for grains and livestock will moderate the gains in asset values for the unusually large stocks of feed grains and extremely high livestock inventories at the end of 1994 and may be expected to translate into a decline in value in 1995 as farmers work inventories down.

Since asset values are expected to rise less rapidly than debt, there will be modest gains in the nominal value of farm equity in 1994 and at best no gain in 1995, which would translate into a decline in the real (inflation adjusted) value of farm equity. Farm sector equity has recovered about $210 billion of the nearly $250 billion of equity eroded during the 1980-86 period. Even so, the 1994 forecast for real farm equity is $610 billion, well below the $1,140 billion real value for 1979 and similar to the value of farm equity in 1961.

Farm Real Estate Values Up Modestly in 1994 and Flat in 1995

Farm real estate values are estimated to be up about 6 percent on a per acre basis in 1994 and up about 3.5 percent in total, reflecting the continual exodus of land from farming. In 1995, land prices are expected to rise minimally on a per acre basis, which translates into no gain in total value of land in farms. With the combined effects from reduced grain prices, resulting from record harvest in the fall of 1994, and the rapidly deteriorating livestock prices, from burgeoning inventories of live animals, farmers are expected to be conservative in pricing land for future production.

Nonreal Estate Assets Also Gain

Nonreal estate asset values are forecast to rise by about 2 percent in 1995, due primarily to increases in the value of crop and livestock and poultry inventories. Large increases in feed grain stocks and in numbers of livestock on farms are expected as feed grain and livestock prices continue to slump. Nonreal estate asset values are expected to rise from $231 billion in 1993 to $238 billion in 1994, primarily due to increased crop and livestock inventories.

Figure 7

Assets, Debt and Equity in Deflated 1987 Dollars
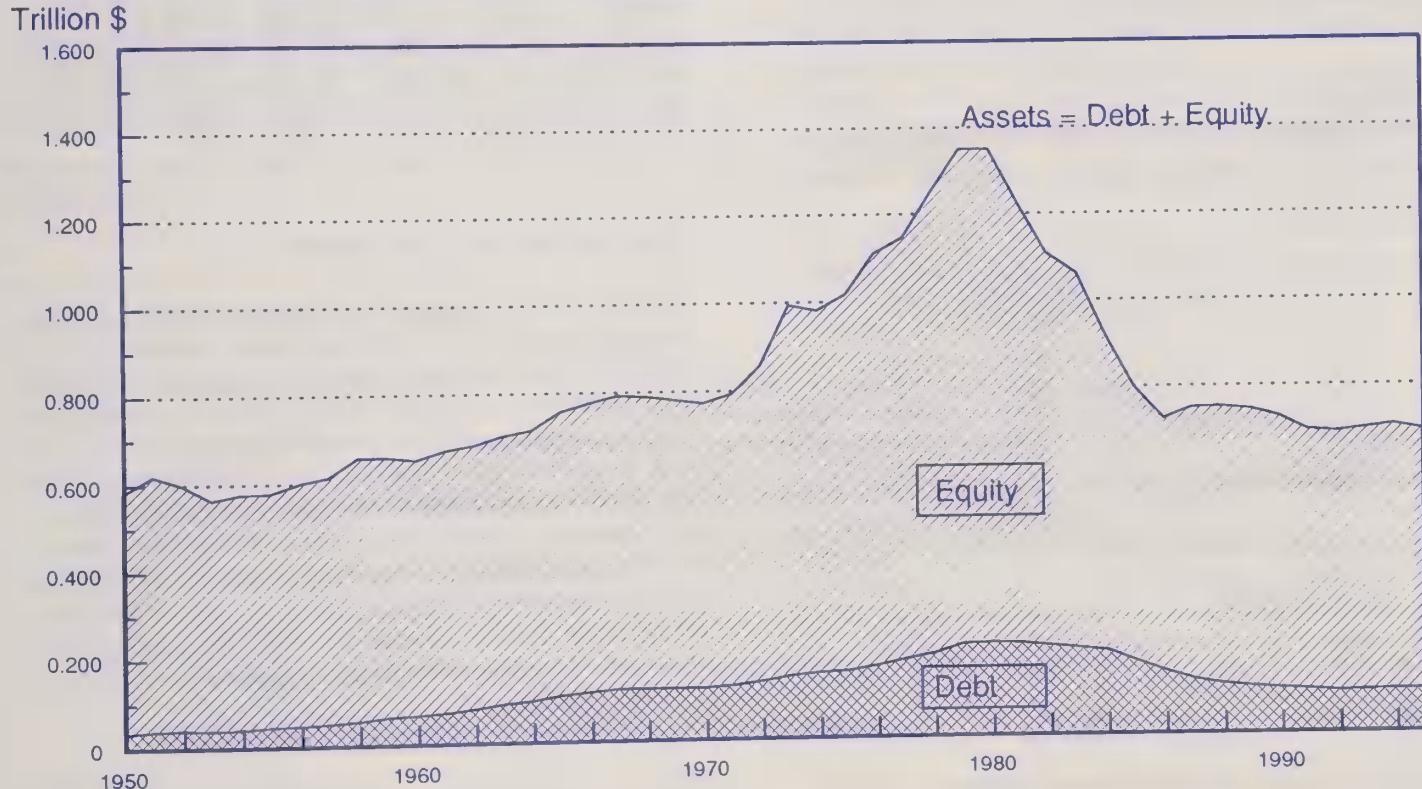
Financial Measures of the Farm Sector Suggest Some Tightening of Farm Financial Conditions in 1995

From 1987 to 1993, the farm sector financial measures showed an improving farm economy as farm income, farm assets, and farm equity rose, borrowing costs were favorable, and farm debt stabilized. The forecast of the financial measures for 1994 and 1995 indicates a slowing of the farm economy.

The rate of return on farm assets is a profitability ratio which measures income earned per dollar of invested capital. The rate of return on farm assets is expected to fall to between 2 and 3 percent in 1995 as farm income declines and farm asset values remain steady. The rate of return on farm assets is forecast to rise from 3.0 percent in 1993 to 3.4 percent in 1994 as income to farm assets rise somewhat faster than farm asset values.

The rate of return on farm equity measures income earned per dollar of equity capital. In 1995, the rate of return on farm equity is expected to fall slightly to between 1 and 2 percent, reflecting the downturn in returns to farm assets and increased interest expenses. The rate of return on equity is expected to fall from the 1994 level of 2.7 percent, following a rise from 2.1 percent in 1993.

Figure 8

Real Net Incomes from Farming and the Real Value of Farm Equity

Net income
Billion 1987 $

Farm equity
Billion 1987 $
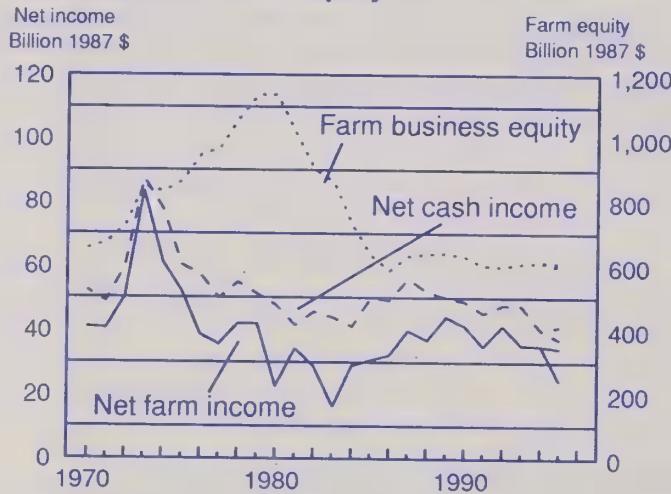
Solvency Likely To Decrease In 1995

Solvency ratios, like the debt-to-asset ratio and the debt-to-equity ratio, indicate the farm sector's relative dependence on business debt and its ability to use additional credit without impairing its risk-bearing ability. The farm sector's debt-to-asset ratio fell from 18.7 percent in 1987 to 16.0 percent in 1993. The farm sector debt-to-equity ratio fell from 23.0 percent in 1987 to 19.0 percent in 1993. This reflects an overall decline in financial risk for the farm sector. These solvency ratios are expected to rise

in 1995, suggesting some increase in financial risk as farm businesses become relatively more dependent on debt financing. The debt-to-asset and debt-to-equity ratios are expected to rise slightly in 1994.

Farm Sector Liquidity May Tighten In 1995

The debt servicing ratio indicates the proportion of gross cash farm income needed to service debt. This ratio was 25 percent in 1985. However, with lower debt levels and more favorable interest rates in 1993, farmers needed only 14 percent of gross cash farm income for debt repayment.

As interest expenses rise and earnings decline in 1995, this ratio may rise, suggesting that some farmers may find it more difficult to meet their debt repayment obligations. The debt servicing ratio is expected to remain at about 14 percent in 1994.

Financial Efficiency May Decline

Efficiency ratios measure the intensity with which a business uses its assets to generate gross revenues and the effectiveness of production, purchasing, pricing, financing, and marketing decisions. The gross ratio shows cash production expenses as a proportion (percent) of gross cash farm income. The higher the ratio, the more farm inputs are used per dollar of gross revenues and the less efficient the operation. The gross ratio has fallen from 76 to 78 percent during the farm recession to 66 to 70 percent during the recovery period. The gross ratio is expected to range from 72 to 74 percent in 1995. The gross ratio is expected to rise slightly from 70 percent in 1993 to 73 percent in 1994.

The net cash income-to-debt ratio (the debt burden ratio) reflects the stress placed on net cash income to retire debt. The higher the value, the lower the stress placed on farm earnings that remain after all payments necessary to retire farm debt on schedule have been made. The net cash farm income-to-debt ratio has risen from 25 percent in 1985 to 38 percent in 1993, suggesting that financial efficiency improved over this period. However, forecasts indicate that efficiency may decline slightly in 1995.

Figure 9
Ratio of Farm Debt to Net Cash Flow Rises in 1994-95

Ratio
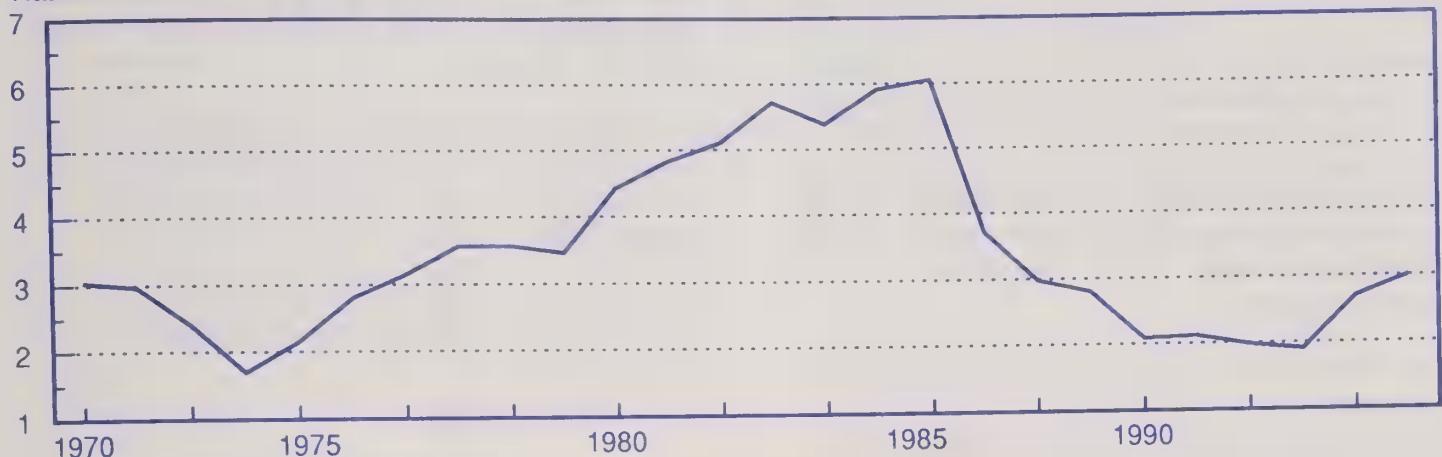
Debt-to-Net Cash Flow Likely To Rise

The net cash flow measure helps farm financial analysts to better understand the process of farm capital formation. It expands on the net cash income concept to account for internal and external sources of funds, and thus provides a broader indication of the resources available to farm businesses to invest in the sector, and to meet current debt obligations.

As debt levels and interest expenses have fallen since 1986, the ratio of debt-to-net cash flow (after interest payments) of 1.9 in 1993 was below the pre-boom 1970-74 levels of 2.4. However, this ratio is expected to rise to about 3.0 in 1994 and 1995 as debt levels rise and growth in net cash flow moderates.

Net Cash Flow Is Defined As Follows:

Net cash flow (after interest expenses)
     = net cash income
     + change in loans outstanding
     + net change in other financial assets
     + net rent to nonoperator landlords (excluding capital consumption)
     - capital expenditures (excluding operator dwellings)
     - interest expenses (excluding operator dwellings)

Net Value Added by the Farm Sector

Net value added by the farm sector to the national economy gives a broad measure of income received by all contributors of assets used in the production of agricul-6ural commodities and services.[1] In contrast, net farm income measures the agricultural income earned by the resources owned by farm businesses. Other contributors toward the net value added include lenders, who contribute financial capital and receive interest payments; employees, who contribute labor and receive wages and salaries; and landlords, who contribute mostly land and receive rental payments for their contributions. The net value added is the sum of the income received by all contributors of assets and labor for the production of agricultural goods.

The net value added by the agricultural sector for 1995 is expected to be stable to down, largely due to the expected decline in the gross agricultural output. An expected increase in the net value of government outlays will mitigate some of the decline in gross output. Intermediate consumption outlays are expected to be stable.

Changes in the net value added by the farm sector usually affect the net income of farm businesses more than the income received by other contributors of farm assets. In the short term farm businesses cannot easily change the amounts of hired labor, rented farmland, or borrowed financial capital without also changing the level of agricultural output. Therefore, the stable to declining levels of net value added in 1995 are expected to be reflected primarily in the net farm income of farm businesses.

Net value added in 1994 is expected to be up $7 billion from 1993. Gross agricultural output is forecast to rise by $16 billion but a sharp decrease in the net government outlays offsets about one-third of the increase. Increases of approximately $3 billion in intermediate consumption outlays also negate part of the $16 billion increase. Net government outlays of about $1.0 billion in 1994 are at the lowest level since 1982 as direct government payments fall to $8 billion.

In 1994 approximately 55 percent of the net value added by the farm sector was received by farm businesses. Labor receives about 17 percent while the agricultural lenders and nonfarm landlords received 12 and 14 percent, respectively.

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[1]See appendix table 7 for methodology and figures on the net value added to the farm sector.

Figure 10
Distribution of Net Value Added by the Farm Sector

Billion $

Legend: Net farm income | Hired labor income | Rent received by nonoperators | Interest
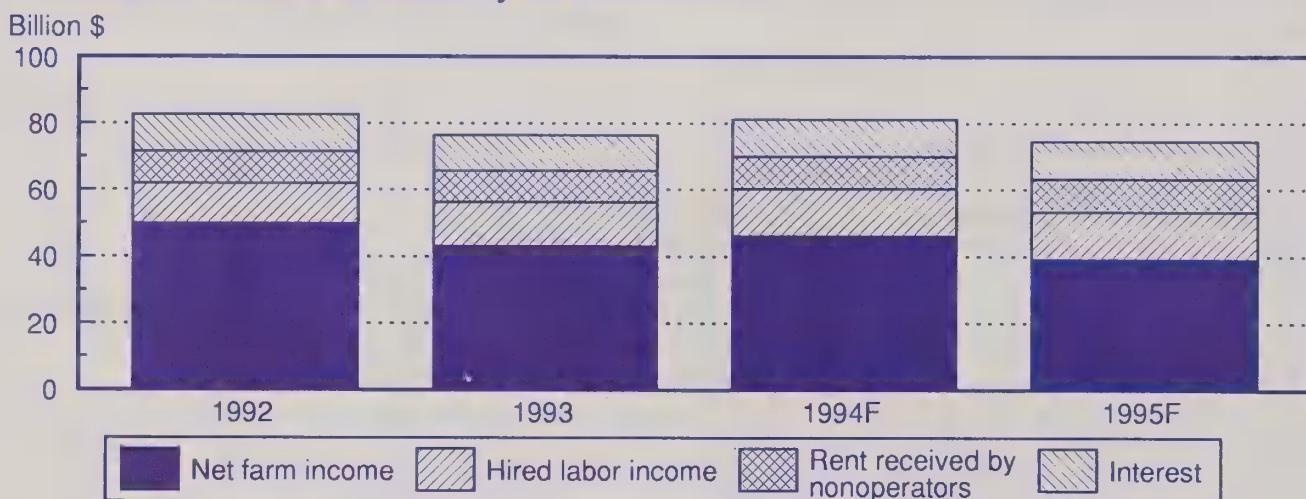
Figure 11
Since 1986 Net Farm Income Accounted for Over Half of the Net Value Added

Billion $
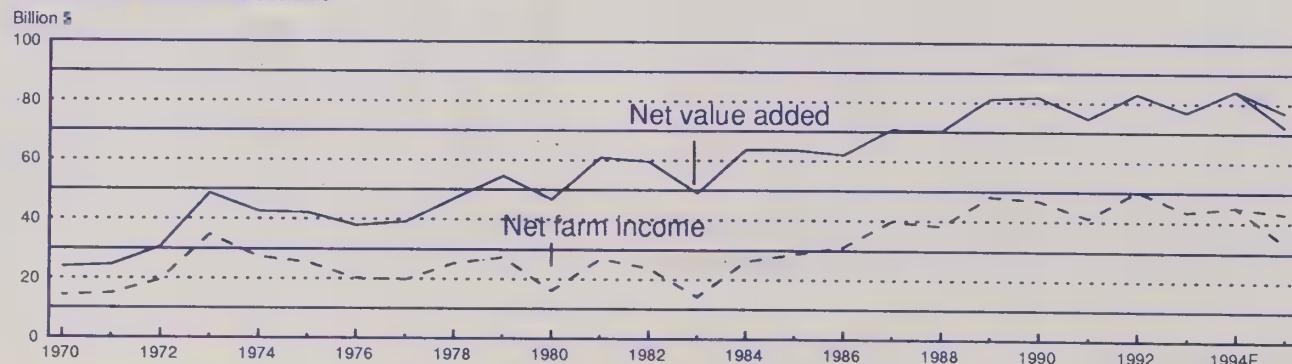
Production Costs for Major Crops To Rise in 1995

Table 1--Production costs for major U.S. field crops, 1995 1/

Expense item	Corn	Sorghum	Barley	Oats	Wheat	Rice	Soybeans	Cotton
Per planted acre:				Dollars				
Total cash costs	195	108	96	78	79	395	120	341
Variable cash costs	147	81	68	50	56	329	78	285
Seed	24	6	8	9	7	22	13	15
Fertilizer	46	20	17	13	15	45	10	37
Chemicals	25	12	8	1	7	55	25	53
Custom operations 2/	10	5	4	6	4	69	4	77
Fuel, lube, and electricity	19	15	12	7	9	66	9	33
Repairs	16	14	13	8	8	27	10	23
Hired labor	8	9	5	6	6	34	7	42
Other	*	▪	2	0	▪	10	▪	5
Fixed cash costs	47	27	28	28	22	66	42	56
General farm overhead	11	6	6	5	5	21	9	16
Taxes and insurance	21	12	12	19	9	21	19	21
Interest	15	9	10	4	8	24	13	19
Economic (full ownership) costs	319	189	167	155	156	560	213	460
Variable cash costs	147	81	68	50	56	329	78	285
General farm overhead	11	6	6	5	5	21	9	16
Taxes and insurance	21	12	12	19	9	21	19	21
Capital replacement	33	29	27	28	12	57	22	45
Operating capital	4	2	2	1	1	9	2	8
Other nonland capital	12	14	13	9	14	21	12	15
Land	64	25	32	23	48	76	50	42
Unpaid labor	26	19	7	19	11	27	20	28
Change from 1994:				Percent				
Total cash costs	2.4	2.4	2.6	2.4	2.6	2.0	2.5	1.7
Variable cash costs	1.9	2.2	2.0	2.4	2.0	1.5	1.7	1.3
Fixed cash costs	4.0	5.4	4.3	4.2	4.3	4.3	4.0	4.2
Economic (full ownership) costs	1.6	2.3	2.2	3.0	1.3	1.9	1.0	1.3

Total may not add due to rounding. * = Less than 50 cents.
1/ Forecasts are as of 11/1/94 and exclude direct effects of Government programs. 2/ Includes custom drying for corn and rice and ginning for cotton.

The costs of producing major field crops in 1995 are expected to rise slightly from 1994, as price indices for farm inputs increase 3 to 4.5 percent in 1995. Farmers' energy expenses are expected to rise 3 to 4 percent in 1995 as fuel prices continue to rise well into 1995. Rising energy prices will push up prices for energy-related inputs like fertilizers and agricultural chemicals. The rise in fuel prices began this past summer, due in large part to disrupted supplies caused by ruptured pipelines in Texas. Fuel prices had remained relatively low throughout the first half of 1994 after prices fell in late 1993. Fuel expenses in 1994 were down 2 percent from 1993.

Farmers' interest expenses are expected to rise about 8 percent in 1995, as interest rates charged on farm loans continue to rise. Farmers' interest expenses rose in 1994 as the Federal Reserve Board began raising interest rates in February 1994 and agricultural lenders followed suit.

Until February 1994, interest rates were at their lowest levels in many years.

The mix of inputs required to produce a crop will determine which crops are most affected by changes in input prices. Cash costs will rise by $5-$8 per acre for corn, cotton, and rice, while the increase will be only $2-$3 per acre for small grains like wheat, oats, and barley. The cost increase will be the most for rice due to intensive use of fertilizers, fuel, and labor. Economic production costs, which reflect the average long-run costs to keep an acre of land in production, are forecast up 1 to 3 percent in 1995.

These costs-of-production forecasts are at the national level and will differ considerably among individual farmers. The forecasts include the costs of farm operators and farm landlords, but exclude the direct costs associated with government commodity programs.

Economic Growth Rate May Slow In 1995

Domestic demand for agricultural products is expected to grow moderately in line with moderate economic growth. Farm interest rates are expected to rise, but not as much as the rates in the general economy. Reflecting stronger world growth and a weaker real value of the dollar, U.S. agricultural exports are expected to increase moderately in 1995.

Economic growth is expected to remain strong but slow somewhat in 1995, particularly in the second half of the year. The primary factor slowing the economy is the higher interest rates of 1994 and expected slightly higher interest rates in 1995.

The sensitivity of the economy to interest rate movements is greater in the long term for a number of reasons. In the capital investment area, many investment projects generate relatively small positive cash flows until nearly fully completed. Higher funds costs will not deter the completion of projects already underway. However, new investment projects must earn expected total returns (and positive discounted cash flows) above the now higher required minimum returns of capital.

Moreover, fixed rate financing may have been previously obtained for various investment projects, thus insulating the projects from higher funding costs. In the longer term, there is greater flexibility for choosing the optimal capital and housing stock with respect to higher real interest rates than in the short term.

Another factor likely to dim economic growth in 1995 is slowed growth in business inventories. Growth in business inventories was slowed in the fourth quarter of 1993 due to unexpectedly strong real final sales. In 1994, business firms have attempted to expand inventories to reflect a stronger sales outlook. In 1995, the rapid pace of business inventory rebuilding of recent quarters should slow as the gap between actual and desired inventories is closed. Higher real short-term business borrowing costs in 1995 should further decrease desired inventories slightly.

The current consumer savings rate of roughly 4.0 percent is low by historical standards and not likely to fall further. In comparison, the savings rate averaged 6.6 percent in the 1980's. Higher real interest rates raise the opportunity cost of current consumption (foregone interest and thus potentially higher consumption in the future) and reduce discretionary income as rates on outstanding credit balances rise. Non-interest rate factors may slow the growth in consumption spending in 1995 as well. The strong rebound in auto sales over the last 3 years has reduced the need to buy new cars to replace an aged auto fleet. The pent-up demand for new homes and some home-related appliances by first time, moderate income, home buyers in 1995 will be reduced by the strong growth in new housing sales over the past 3 years. Slower growth in domestic demand in 1995 is

expected to be cushioned somewhat by stronger growth in exports resulting from stronger foreign growth and the decline in the real value of the dollar in 1994.

Inflation in 1995 is expected to remain low compared with the last 20 years, but a slight increase is likely. Labor and capacity utilization rates are high by historical standards. As a result, the strong productivity gains of the early 1990's are likely to slow somewhat as resource markets tighten. Therefore, some modest increase in inflation is likely due to the tighter labor and capital markets, and slightly lower productivity growth. Stronger world growth will likely reduce excess capacity abroad, putting upward pressure on the price of some U.S. imports. However, recent gains in managerial and labor efficiency will hold down the increase in inflation in 1995. With over 4 million employees working part-time because they are unable to find full-time employment, there is still some excess capacity in labor markets.

Agriculture and rural America should benefit from moderate domestic growth and stronger foreign demand for U.S. goods. A tighter monetary policy helps insure that low inflation will continue into the future. High inflation generates real costs and distortions that raise real long term interest rates and reduce capital formation and productivity. Thus, low inflation encourages greater long-term economic growth, which benefits rural America.

Foreign economic growth is expected to increase significantly in 1995, improving the outlook for exports. Moreover, U.S. exports in 1995 will be further strenghtened by the fall in the real value of the dollar in 1994. Against this favorable economic backdrop, U.S. agricultural exports in fiscal 1995 are projected to increase, particularly in the more income sensitive areas of livestock and horticultural products. The real value of the dollar is projected to rise in 1995, reflecting higher real U.S. interest rates and reduced long-term inflationary fears. However, the overall outlook is for overall improvement in agricultural exports.

Federal Reserve Tightened Monetary Policy Throughout 1994

The Federal Reserve gradually tightened monetary policy in 1994 in response to increased concern over potentially higher inflation. Inflationary concerns were spurred by continued higher than sustainable long term economic

growth and the resulting continued tightening in labor and capital markets. In labor markets, the unemployment rate fell from 6.7 percent in January to 5.8 percent in October. Likewise in capital markets, manufacturing capacity utilization in January was 82.2 percent and rose to 84.6 percent in October. During the 1970's and 1980's sustained capacity utilization above 83 percent was generally characterized by accelerating inflation.

Moreover, growth in sectors most sensitive to interest rates, such as residential consruction and consumer durable purchases, has not been appreciably slowed by higher interest rates. For example, desite higher interest rates on mortgages and construction loans, single family housing starts increased at an annual rate of nearly 6 percent in the third quarter to over 1.2 million units.

Figure 12
Commercial Bank Loan Rates Affecting the Farm the Farm Sector, 1985-95
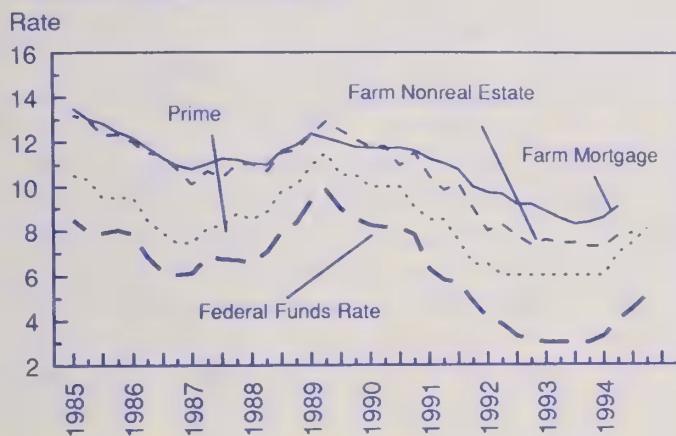
Note: Data are from the second month of each quarter.

In 1995, loan rates for agricultural purposes are expected to rise. However, the rise will be less than interest rates in the general economy, reflecting relatively more stable funding costs for rural financial institutions. Rural banks involved in agricultural lending have a greater proportion of their deposits in small consumer deposits than their larger urban counterparts. Rates on consumer deposits move more slowly than open market interest rates, especially when open market interest rates rise and bank liquidity is

high. Moreover, since consumer deposits have typically longer maturities than large managed money market deposits (such as large certificates of deposits), bank deposits are "rolled over" less frequently at rural banks.

The combination of less volatile interest rates on consumer deposits and their longer maturity causes the overall average bank costs of funds to be more stable at small rural banks. More stable deposit costs at small banks generate more stable loan rates at small banks. For further details see outlook section on debt.

Since early February, when the discount rate and the Federal funds rate (the short-term interbank rate) were both 3 percent, the Federal Reserve has gradually moved from a policy of monetary ease to a more neutral and not accommodative monetary policy. The latest tightening occurred on November 15 when the Federal Reserve raised the discount rate and the Federal funds interest rate target to 4.75 and 5.50 percent, respectively. Tighter monetary policy, stronger than expected domestic economic growth, increased concerns over inflation, and an emerging recovery in Europe, pushed the yield on 30-year T-bonds to over 8.1 percent in late November, compared to 6.4 percent at the beginning of the year.

Federal Reserve Board tightening has raised the real 3-month T-bill rate (measured by the 3 month T-bill rate minus the CPI inflation rate over the previous 12 months) from roughly zero in January to 2.8 percent in late November. In comparison, real 3-month T-bill rates during 1979-93 averaged 2.1 percent. A tightening of monetary policy will eventually slow economic growth, but only with a substantial lag that varies over time. The lag from a tightening of monetary policy and slowing economic growth depends upon many factors, including the degree of monetary tightening, the response of longer-term interest rates to the monetary tightening, the underlying strength and momentum in the goods and service markets, and the liquidity in the household, business, and banking sectors. Many economists believe the economy has enough underlying momentum to resist a significant slowing of growth until mid-1995.

Characteristics of Commodity Program Recipients

by

Janet Perry
and
Mitch Morehart[1]

Abstract: This report characterizes groups of farms receiving government commodity program payments in 1993. Since programs began in the 1930s, producers received payments based primarily on the producer's volume of production of program commodities. Data from the Farm Costs and Returns Survey show that commercial cash grain producers in the Corn Belt and Plains regions received a majority of payments.

Keywords: Commodity payments, government payments, targeting, farm financial position, Farm Bill.

The 1995 farm bill will likely continue the trend toward fewer government constraints on production and a more market-oriented pricing system. Because agricultural programs will be expected to bear some portion of declining government budget outlays, the scope of farm price and income supports probably will shrink.

Who receives direct payments from commodity programs has been a farm policy issue since programs began in the 1930s. President Coolidge expressed concerns that benefits would be concentrated on farms of the largest producers. USDA has published many studies over the years that support Coolidge's concerns (see *Suggested Further Reading*).

Agricultural programs affect prices and income in a variety of ways. Some programs are designed to control the quantity of agricultural products that can be marketed. Others control land in production, while still others directly transfer income to farmers. This paper looks at farms receiving direct government payments. Information on recipients of direct commodity payments during 1993 show that one-third of farm operators received payments.[2] Direct commodity payments accrue mainly to larger farms and to those that specialize in production of program commodities. Because the programs have production goals, program outlays are roughly proportional to base acreage and output. Even though there is a $50,000 per person payment limit, more than one person is eligible for payments on most large farms. While many of the program participants operate modest-sized farms, a smaller number of larger farms account for most of the acreage enrolled in and production covered by the programs.

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[1]Agricultural economists, Economic Research Service.

[2]A farm operation can be legally organized so that several "persons" are eligible to receive payments.

About the data...

Deficiency payments make up the bulk of direct government commodity program payments (see definitions). The Federal Government also provides aid to farmers growing crops in declared disaster areas. In 1993 disaster payments increased due to extensive flooding in the Midwest and drought in the Southeast. Farmers receive payments in several installments. The final payment under this program will occur in 1994 and is not captured by the 1993 Farm Costs and Returns Survey.

The annual Farm Costs and Returns Survey provides economic data on farms in 48 States. The survey gathers statistics on production, gross income, expenses, assets, debt, and characteristics of the senior operator such as age, education, major occupation, and household income. The Farm Costs and Returns Survey links characteristics of the farm business with the people who run the farms.

The 2.1 million senior farm operators in this analysis represent a subset of people involved in agricultural production. While payments are received by persons, the FCRS collects data at the farm business level. The survey does not collect data on payment amounts received by partners operating other farms, and by other owners of farmland. We know little about the economic characteristics of these non-operating farmland owners. Through the Farm Costs and Returns Survey, USDA collects significant information about the finances of senior farm operators. These operators are the major entrepreneurs receiving the largest share of the net returns. They are the ones making the majority of decisions to allocate resources on the farm.

Trends in Government Payments

Farmers first received direct commodity payments in the early 1930s. The Depression was in full swing and foreclosures were widespread. Many farmers were in poverty and farmers' income averaged about one-third that of nonfarmers. In the first years of the commodity programs, payments to farmers represented about 2 percent of gross cash farm income. By 1939, payments exceeded 8 percent of gross cash farm income as more farmers enrolled in the programs. Since 1939, payments have averaged 7-8 percent.

Aggregate payments increased rather dramatically during the mid-1980s, reaching a high of almost $17 billion in nominal dollars (and 10.4 percent of gross cash farm income) in 1987 (see figure A-1). Outlays have begun to decrease, but 1993 payments of 13.4 billion were the highest since 1988. High payments mainly resulted from historically high feed grains production in 1992 that boosted deficiency payments received in 1993. Although affected farmers will receive disaster payments for damage from flooding and drought, the full impact of these payments is not in calendar year 1993.

Figure A
Aggregate Direct Government Payments, 1970-95
Billion $
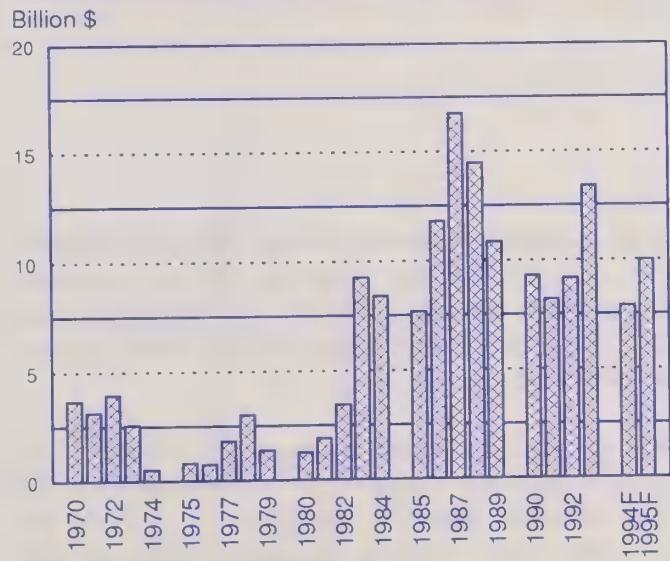
Aggregate payments are forecast to be approximately $8 billion in 1994 and $10-$12 billion in 1995. The bulk of payments in recent years has been to farms growing feed grains and wheat. However, conservation payments have steadily increased over the last 10 years.

Which Farms Receive Payments?

A variety of sizes and types of businesses make up our food and fiber system. Corner quick-stop grocers differ from large warehouse stores. Not all farm businesses are alike either. Commodity programs are designed to control the supply of selected crops, as well as to support the incomes of farmers growing those crops. Accordingly,

payments are not equally distributed across all farms or regions. Commodity payments go to those farmers growing program crops and participating in the program. What characteristics do participating farms have in common?

Recent direct government payments ranged from $8.2 billion in 1991 to $13.4 billion in 1993. Deficiency payments for feed grains, wheat, cotton, and rice comprise the bulk of total direct payments. The distribution of payments across various classifications of farms reflects the intensity of program commodity production and the extent of program participation. In table A-1 we show the distribution of payments by categories such as economic size of farm, location, commodity specialty, and acreage operated. Because this traditional analysis presents an incomplete picture of commodity payment recipients, we also identify a particular group having several characteristics related to increased payment amounts.

Economic size. Large farms received a disproportionate share of payments relative to their numbers. Farms with gross sales over $250,000 account for 10 percent of all farms but received almost one-third of total payments in 1993. Farm operations with gross sales of $100,000 to $249,999 received another third of total direct payments. These two groups represent about 17 percent of all farms, but accounted for nearly 80 percent of major program-eligible commodities sales. Farms with gross sales under $10,000 received less than 5 percent of total payments.

Production specialty. The most widespread effects of changes in direct payment programs would be felt by farms that specialized in cash grain production and livestock producers (beef, sheep, hog). These farms received nearly 70 percent of total payments. They are important to agriculture, representing over 60 percent of farms and accounting for over 80 percent of program commodity sales. Cotton farms had the highest average payments per participating farm at $39,108. In 1993, direct payments comprised more than 15 percent of gross cash income for cash grain and cotton farms.

Regional breakdown. Producers in several regional pockets of the United States received more payments than others (see map). The Corn Belt and Northern Plains regions, where grain production dominates, received the largest share of total payments, together accounting for almost 50 percent. The highest average payment ($23,000) occurred in the Delta region, where cotton farms and a majority of rice farms are located. Direct payments were 10 percent or more of gross cash farm income in the Northern Plains, Southern Plains, and Delta regions.

Relatively few rural residents and communities today rely on farming for their economic base. Only about 17 percent of the Nation's 3,097 counties, compared with 65 percent in 1950, rely on farming for 20 percent or more of their earned income. Of the $13 billion in farm commodi-

Share of gross cash farm income
☐ < 0.1 percent
▨ 0.1-5 percent
▪ >5-20 percent
■ > 20 percent
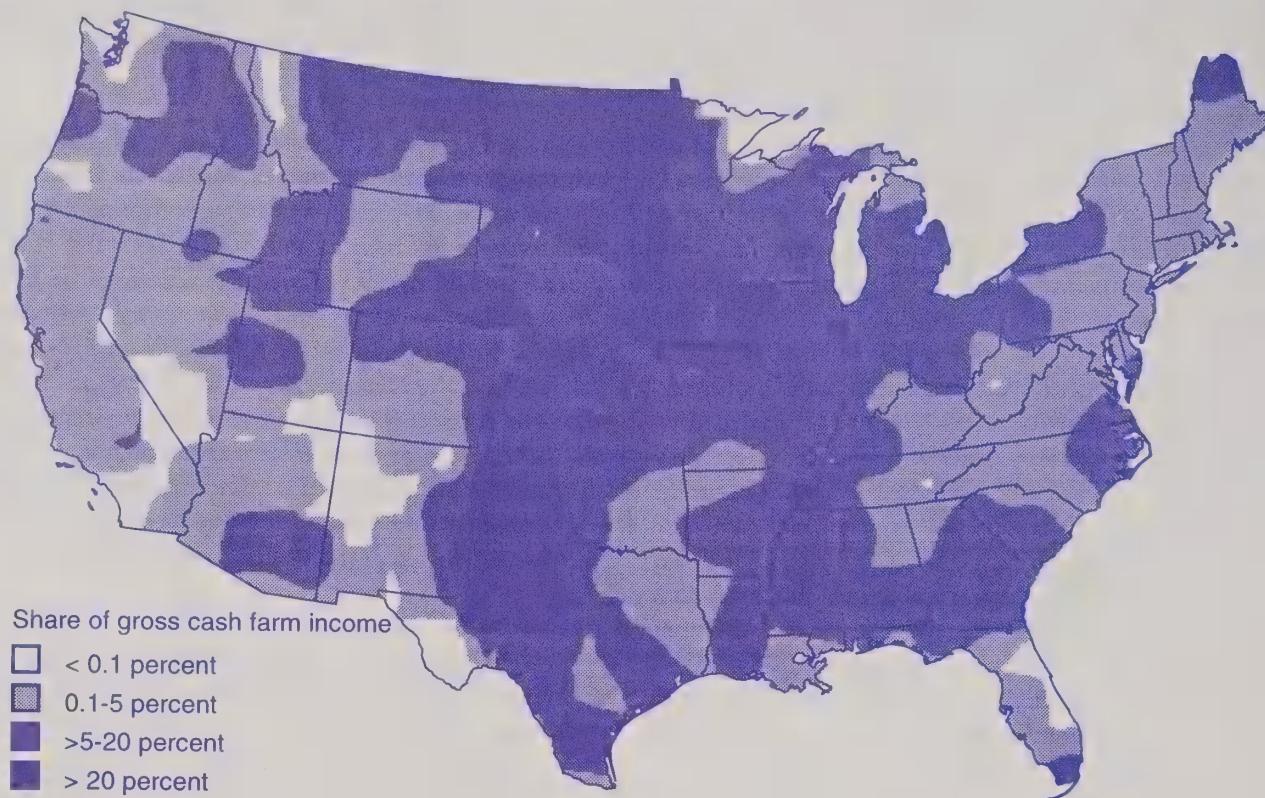
ty payments, just over $3.4 billion went into the these economies in 1993. It is in these counties where commodity programs have the most impact on the local economy. However, effects of government payments are less important in counties where farming contributes less than 20 percent of the total earned income.

Acres operated. The distribution of payments by acreage operated most clearly reflects the production basis of many current government programs. As might be expected, there is a close correspondence between the proportion of total payments received and the contribution to sales of major program-eligible commodities at all acreage levels. Farms operating 501 or more acres in 1993 received nearly 75 percent of total payments and accounted for about 80 percent of major program-eligible commodity sales. This group of farms constituted 18 percent of all farms and about 36 percent of all those receiving government payments in 1993.

Full-time farmers get greater payments. As expected, farm operators whose major occupation is farming received a larger share of government payments than those who did not farm full-time. Farms whose operators

primarily worked on-farm received an average government payment of $17,200, and 84 percent of total payments. These operators were more likely to specialize in program crops and to have larger farms, both of which lead to larger payments.

About 17 percent of farm operators are retired. The businesses of these retired farmers received approximately $6,200 in direct commodity payments, on average, but they received only 5 percent of total payments and sold less than 2 percent of program crops. Farms whose operators primarily worked off the farm received an average commodity payment of $5,900.

Major occupation of the operator is also tied to location. A larger proportion of farmers in the Midwest and Northern Plains, where there are fewer off-farm employment opportunities, primarily worked on their farms, and participated more heavily in commodity programs.

Financial Impact of Program Payments

Focus on the equity of farm programs continues. Designers of the next farm bill may explore ways to target

program benefits. In past discussions targeting generally has meant directing payments to small or financially vulnerable farms. Do current programs aid the financially stressed?

A Lorenz curve is a standard way to show the percentage of income received by a corresponding percentage of farms having a given characteristic. Figure A-2. shows a Lorenz curve that maps the percentage of farms receiving a given percentage of commodity payments. If the distribution were equal, the curve would be a straight line coming out of the origin at a 45 degree angle. For most attributes, inequality is the rule, and the concentration curve falls below this diagonal line. The more equally income is distributed, the more the curve pulls inward toward the diagonal. In figure A-2 the distance of the curve from the diagonal demonstrates the relative degree of concentration of government payments.

Using the Lorenz curve is not by itself a complete analysis of the distribution of payments. Payments are concentrated on the one-third of farms that actually receive payments. Eighty percent of recipient farms (point A) received less than 40 percent of payments (point B). This distribution shows that a small proportion of farms receive the bulk of the payments. We would expect this type of distribution if targeting works by reaching a small proportion of farms, since not all would need the aid.

However, the programs also have a supply control feature that distributes payments to those who have the ability to produce larger output. Targeting and supply control affect two different groups of farmers, both of which are represented in the proportion receiving payments. By looking at farm financial position, we show the impact on farms of having no government payments. We couple this analysis with the additional perspective of the impact of government payments on the average farm operator household.

Financial position. The ability to generate income and manage debt is an indicator of a business's financial stability. We categorized farm businesses by the farm's income level and debt-to-asset ratios at the end of 1993 (see *Definitions*). Farms in a favorable position received 60 percent of government payments. Marginally solvent farms, while showing positive farm income in a given year, are also heavily in debt. These farms received about 13 percent of total government payments in 1993.

Lorenz curve for direct farm program payments, 1993

Percent of direct payments

Percent of farms
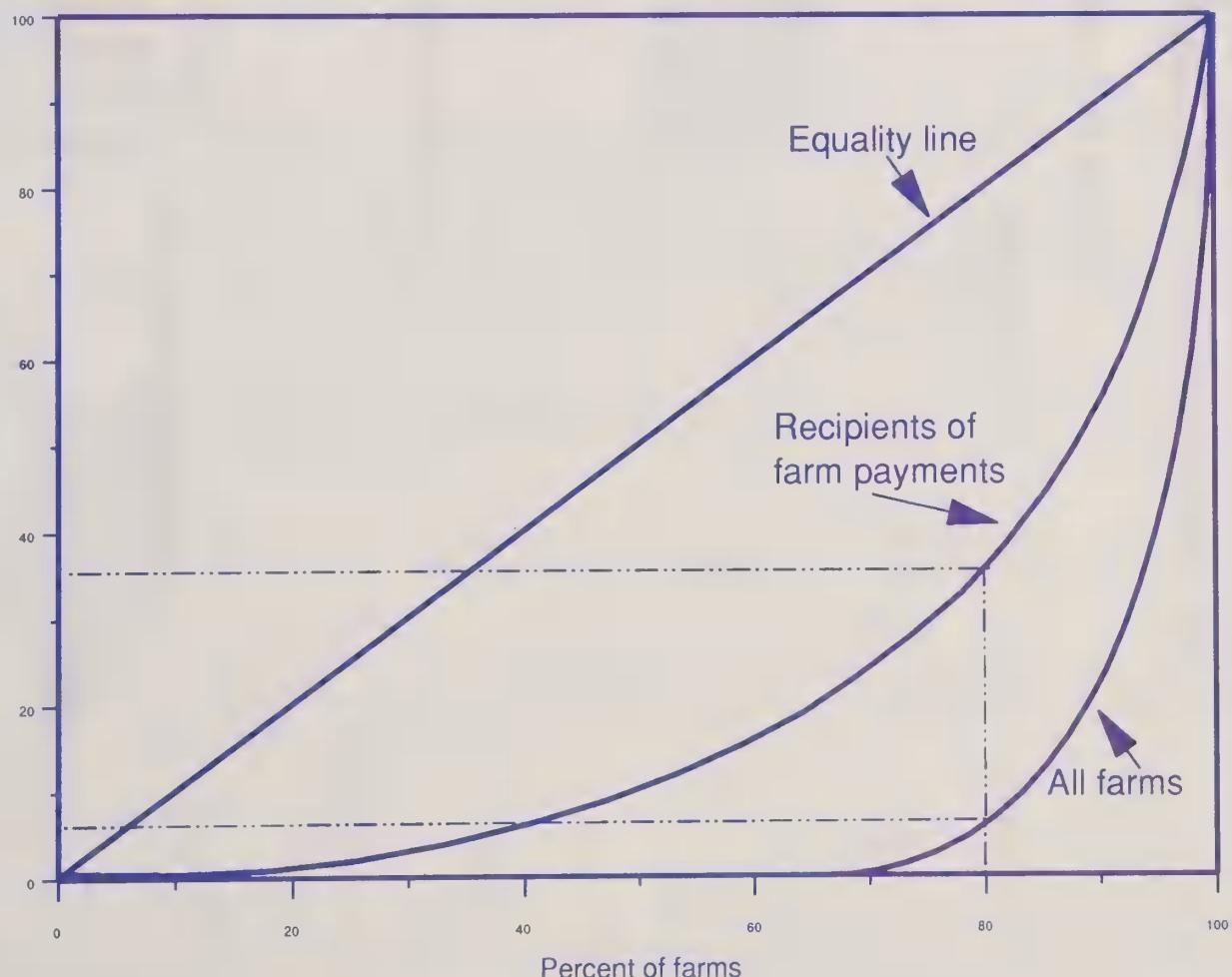
Financial position of commercial farms in Corn Belt and Plains regions by participation in set aside or CRP programs, 1993

Farms not participating

Vulnerable
4.2%

Marginally
solvent
11.6%

Favorable
62.5%

Marginal
income
21.8%

Participating farms

Adjusting
income for
no
government
payments

Favorable
50.4%

Vulnerable
9.8%

Marginally
solvent
10.5%

Marginal
income
29.3%

Favorable
59.6%

Vulnerable
6.9%

Marginally
solvent
13.4%

Marginal
income
20.1%
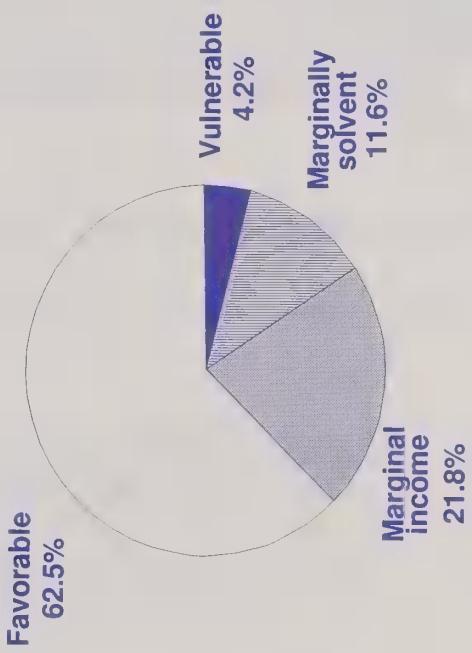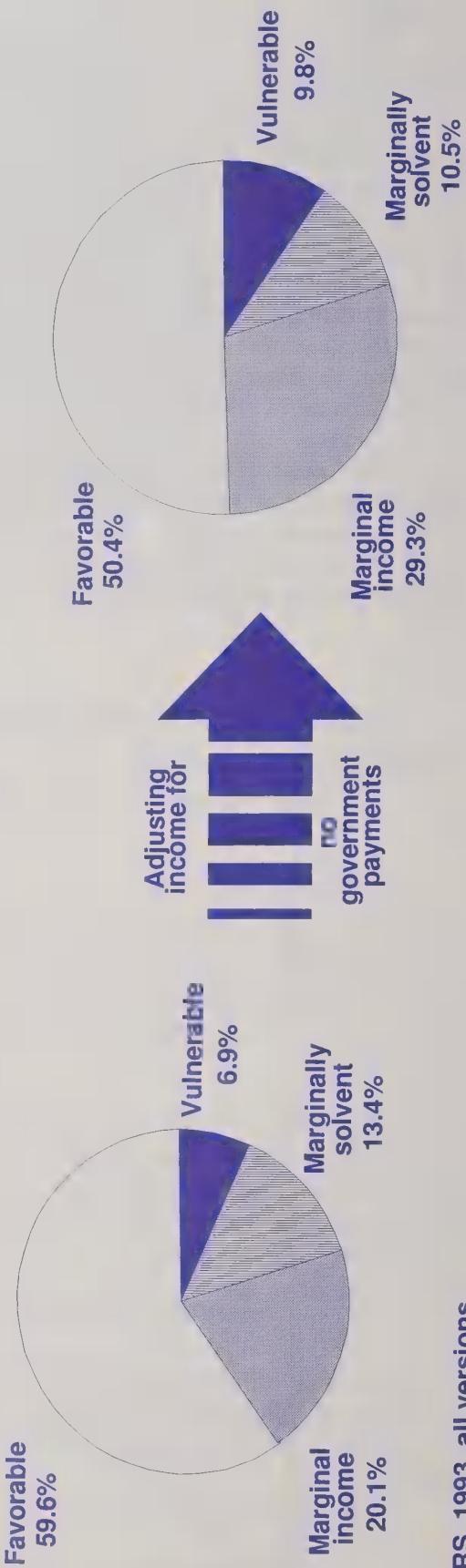
FCRS, 1993, all versions

Table A-1--Distribution of Direct Government Payments, 1993

Item	Payments per reporting farm	Percent of total payments	Percent of major program commodity sales	Percent of farms reporting payments	Percent of all farms	Pct. total set-aside acreage	Pct. of farms reporting payments in class	Pct. total planted program acreage	Pct. planted acreage reporting payments	Payment percent o gross cas income	Other farm income % of gross cash income	Payments per farm
All farms	13,220	100.00	100.00	100.00	100.00	100.00	36.02	100.00	91.71	7	11	4,761
Economic class:												
$500,000 or over	50,728	13.57	19.95	3.54	2.20	14.34	57.90	14.78	93.46	3		29,369
$250,000 to $499,999	34,838	18.54	24.17	7.03	3.41	17.62	74.35	20.86	96.46	8	10	25,902
$100,000 to $249,999	20,168	32.82	35.91	21.51	10.79	31.80	71.80	35.21	95.19	9	10	14,482
$40,000 to $99,999	11,684	19.40	13.94	21.96	13.21	20.46	59.85	21.05	89.42	10	14	6,993
$10,000 to $39,999	6,232	11.06	5.50	23.46	21.09	11.24	40.07	6.99	72.73	10	14	2,497
$9,999 or less	2,708	4.61	0.52	22.50	49.30	4.55	16.44	1.12	32.07	10	31	445
Production specialty:												
Cash grain	17,831	48.71	68.36	36.12	17.02	50.15	76.40	60.61	94.05	15	14	13,624
Cotton	39,108	9.81	10.05	3.32	1.28	9.55	93.29	8.23	95.58	17	17	36,486
All other crop	8,760	14.70	6.64	22.18	23.10	9.17	34.58	5.74	84.16	4	14	3,029
Beef, hog sheep	9,483	20.16	12.37	28.11	46.67	24.84	21.69	19.38	90.10	5	8	2,057
Dairy	8,896	5.70	1.96	8.47	6.79	5.04	44.95	5.41	74.77	2	3	3,999
All other livestock	6,709	0.92	0.63	1.81	5.14	1.24	12.66	0.63	79.99	1	26	849
Region:												
Northeast	7,575	2.09	1.53	3.64	6.93	2.55	18.93	1.80	61.06	2	6	1,434
Lake States	10,671	13.53	9.27	16.76	10.57	16.47	57.14	9.67	88.46	8	11	6,097
Corn Belt	11,576	25.26	34.71	28.85	20.60	17.67	50.45	24.00	90.42	8	7	5,884
Northern Plains	15,833	22.04	22.02	18.40	9.09	21.65	72.93	30.25	97.06	12	12	11,547
Appalachia	5,356	2.95	3.99	7.28	14.49	4.74	18.09	3.20	76.36	4	10	969
Southeast	11,753	4.62	2.93	5.20	7.53	5.65	24.89	2.83	83.04	5	11	2,925
Delta	23,004	6.15	6.07	3.53	5.53	5.07	23.03	3.49	93.74	11	19	5,299
Southern Plains	18,066	12.20	8.65	8.93	12.41	14.06	25.93	12.43	94.74	11	10	4,684
Mountain	19,735	7.41	6.32	4.97	5.65	7.94	31.65	8.55	93.76	6	13	6,246
Pacific	20,366	3.74	4.51	2.43	7.22	4.20	12.11	3.77	82.97	1	14	2,467
Acres operated:												
2001 acres or more	46,111	22.34	24.62	6.40	3.40	24.50	67.85	29.63	96.63	9	12	31,284
1001 to 2000 acres	28,809	24.45	27.61	11.22	5.08	29.17	79.60	26.51	97.24	9	10	22,933
501 to 1000 acres	17,978	25.60	27.55	18.83	9.67	21.32	70.12	24.12	93.25	9	10	12,606
251 to 500 acres	9,265	16.32	13.30	23.28	14.65	14.11	57.26	12.65	82.94	6	10	5,305
101 to 250 acres	4,887	8.50	5.26	23.00	22.72	8.99	36.46	5.61	66.00	5	10	1,782
100 acres or less	2,136	2.79	1.66	17.26	44.48	1.91	13.97	1.48	41.18	1	15	298
Net cash farm income:												
$100,000 or more	43,278	19.31	28.18	5.90	3.16	18.13	67.17	21.07	95.64	4	11	29,071
$40,000 to $99,999	23,216	25.83	29.94	14.71	7.25	22.29	73.07	26.04	95.18	8	11	16,964
$10,000 to $39,999	12,762	24.57	20.98	25.45	16.55	24.31	55.37	24.66	90.26	9	11	7,067
$1 to $9,999	5,680	10.55	6.44	24.56	25.83	7.05	34.25	8.24	85.04	10	13	1,946
$0 to -$9,999	4,627	6.72	4.32	19.20	36.88	11.33	18.75	6.47	80.82	9	8	867
-$10,000 to -$39,999	11,148	6.33	5.32	7.51	8.55	8.94	31.62	6.96	90.04	9	9	3,525
-$40,000 or less	33,099	6.68	4.83	2.67	1.77	7.94	54.32	6.57	91.65	5	12	17,978
Net worth:												
$900,000 or more	33,042	26.08	29.23	10.44	7.29	24.78	51.55	27.54	93.05	5	11	17,033
$600,000 to $899,999	20,411	15.47	14.49	10.02	6.10	14.46	59.17	14.63	96.06	8	11	12,077
$300,000 to $599,999	13,107	24.24	26.30	24.45	19.61	22.69	44.89	24.48	92.04	7	11	5,884
$75,000 to $299,999	8,393	26.46	23.18	41.68	47.24	29.86	31.78	25.77	89.06	9	12	2,667
$0 to $74,999	6,416	6.07	5.34	12.52	18.47	6.86	24.41	5.83	85.22	10	8	1,566
Less than $0	24,516	1.67	1.46	0.90	1.29	1.35	25.18	1.75	90.16	7	9	6,172
Financial position:												
Favorable	12,809	59.17	63.56	61.07	60.73	53.59	36.21	59.80	91.03	7	11	4,639
Marginal income	11,652	21.10	16.35	23.94	28.27	26.08	30.50	20.56	91.95	8	13	3,554
Marginal solvency	18,185	13.42	13.86	9.76	6.08	11.79	57.84	12.46	95.95	6	9	10,517
Vulnerable	15,948	6.31	6.23	5.23	4.92	8.54	38.30	7.19	89.32	8	16	6,108

Source: 1993 Farm Costs and Returns Survey, USDA.

Farm businesses classified in a vulnerable overall financial position received 6 percent of total direct payments in 1993. This low amount reflects the group's relative importance to the sector. They represented 5 percent of all farms and accounted for 6 percent of total program commodity sales. Farms in the vulnerable category are more likely to be small (sales less than $50,000). Many small-farm operators produce commodities not covered by government programs and their households depend mainly on off-farm income.

The impact of payments. Commercial farms (sales over $40,000) in the Corn Belt and Plains areas received almost 60 percent of government payments. Counties here are also some of the most farming-dependent. From the map, readers can note that farms in the central part of the United States have the highest ratio of government payments to gross income. Farms in this area are important to agriculture. They accounted for 42 percent of farms in 1993, and provided 65 percent of major program commodity sales.

To view the contribution of government programs to returns in a static situation, we adjusted farm income for the contribution of government payments. As our example, we looked at farms having several of the characteristics leading to higher payments--commercial farms in the Corn Belt and Plains areas (see figure__). Net farm income for participating farms was adjusted by removing income from government payments. [3]

This adjustment caused the percent of participating commercial farms classified in "favorable" financial position to decrease 10 percentage points, from nearly 60 percent to 50 percent.

The percentage of participating farms classified as "vulnerable" increased almost 3 percentage points when income from government payments was removed. The movement of farms from favorable position to marginal income group, and from marginally solvent to a financially vulnerable position shows that direct government payments make a difference in the level of income. Without direct payments, many more farmers would be in a vulnerable financial position. Even so, farms that did not receive direct payments in 1993 were in better financial position, with almost 63 percent in favorable position and only 4 percent in vulnerable position.

The loss of government payments may affect small farms more than larger farms. Average payments for participating farms ranged from $2,708 for smaller farms to over $50,000 for farms with gross sales of $500,000 or more. (Even though there is a $50,000 per person payment limit. More than one person is eligible for payments on most large farms.) Although larger farms received the highest average payment, the impact of the payment was less for them than for small farms. Payments to larger farms as a percentage of gross farm income ranged from 3 to 9

percent. In contrast, payments as a percentage of gross farm income were highest (10 percent) for smaller farms.

The household perspective. For family farms (see *Definitions*), households with higher total income receive the largest share of payments, although their level of income was not necessarily a result of program payments. Households with income below the poverty threshold participated in government commodity programs at about the same rate as households with adequate income. Families not participating in programs have higher household income on average than recipient households, largely due to the off-farm income they earn. Seventeen percent of payments went to farm households with combined before-tax incomes (farm and off-farm income) of $100,000 or more.

On the whole, direct farm program payments appear inversely related to off-farm income earned by the household. When families depend more on farming for income, they receive a greater proportion of total income from agricultural product and direct government payments. For example, the 25 percent of farm families earning off-farm income of less than $10,000 (ie, those who depended on farm income) received just under half of total payments. Conversely, for families receiving $25,000 or more in off-farm income, the average payment was about 45 percent of that received by families earning $10,000 or less-- $3,200 compared with over $7,000.

What's Ahead for Commodity Programs?

Commodity programs originated in response to real problems in our farm sector. Then, farmers constituted a larger component of the population and, as a group, they had low incomes. Commodity programs have been changed several times since their inception and the sector has undergone structural change. Today, the majority of payments go to a small number of relatively large operations.

The disparity in average income between farm and non-farm populations that originally prompted government action no longer exists. The income gap has closed, mainly because farm families participate in the off-farm labor market, not because of direct government payments. Few low income farmers participate in programs and they receive considerably lower average payments when they do participate (due to size of farm considerations).

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[3] We adjusted net cash income by the amount received from direct commodity programs. However, there is a cost associated with participation. If the farmer did not participate in the program, that cost would not be incurred. We also consider the associated costs and income from land idled under the program that would be brought back into production. Prices would likely change as a result of eliminating payment and farmers may choose to alter their historic production patterns. These effects are difficult to mold for a large data set like the FCRS and are not considered in this analysis.

Budget talks will likely predominate in Congress in 1995. Even though outlays for commodity programs are a small percentage of the total budget, they will likely sustain cuts. The next farm bill may address targeting issues such as the revision of the deficiency payment rule, payments to wealthy farmers, and a proposed reduction in covered acreage. In addition, Congress is slated to examine environmental concerns such as pesticide controls and use of erodible lands. At conflict in these policy debates will be the issue of supply control and income stability, as opposed to income support for low income farmers.

Suggested Further Reading

Perry, Janet and Mary Ahearn (1992). *Limited Opportunity Farm Households in 1988*. Washington, D.C: Economic Research Service, Agriculture Information Bulletin Number 662, February, 1993.

Reinsel, Robert (1990). *The Distribution of Farm Program Payments, 1987*. Washington, D. C.: Economic Research Service, Agriculture Information Bulletin Number 607.

Shaffer, James D. and Gerald W. Whittaker (1990). "Average Farm Incomes: They're highest among farmers receiving the largest direct government payments," in *Choices*, Second Quarter 1990, pp 30-31.

Definitions

Debt-to-asset ratio--calculated by dividing the farm's liabilities by the value of farm assets.

Direct payments--a component of gross farm income. Government payments include storage and disaster payments and payments from any State agricultural programs. Farm operators must comply with acreage reduction requirements to receive Federal government payments. Deficiency and diversion payments are made for wheat, rice, feed grains (corn, oats, sorghum, and barley), and cotton. Payments also are made under the wool act. In previous years payments were also made for dairy herd buyout and honey. Disbursements typically occur over three time periods. Farmers receive an advance at sign-up. A second payment is made at the end of the first 5 months

of the marketing year. Final payment follows at the end of the marketing year. This means that total payments for a crop can extend over a 2-year period. The design of the Farm Costs and Returns Survey captures income received during a calendar year. Conservation program payments are primarily Conservation Reserve Program rental payments. There are additional conservation program payments for several State programs. Disaster assistance makes up a third category. These payments are often paid

out over several years as claims are settled. The final category is payments for various small programs that do not fit into the other categories.

Family farms--farms owned and operated by families that have a direct financial stake in the success of the business. Excludes farms organized as non-family corporations or cooperatives, or which have a hired manager. The survey collects data only for the household of the senior farm operator. Families of partners or shareholders are not represented.

Financial position--describes the financial health of a farm business from a combination of income (net farm income) and solvency (debt/asset ratio) measures. Farms are categorized into one of four classes:

- **Favorable**--positive income and debt/asset ratio less than or equal to 0.40. These farms are generally considered financially stable.

- **Marginal income**--negative income and debt/asset ratio less than or equal to 0.40. Periods of negative income may not pose financial difficulties if these farms are carrying a low debt load and can either borrow against equity or obtain income from off-farm sources.

- **Marginal solvency**--positive income and debt/asset ratio above 0.40. A high debt/asset ratio may be acceptable if these farms can generate enough income to service their debt and meet other financial obligations.

- **Vulnerable**--negative income and a debt/asset ratio above 0.40. These farms are generally considered financially unstable.

Net cash farm income--gross cash income minus cash expenses. Represents the money available to the farm business after the amount spent during the production process for inputs is paid, and is calculated without regard to the ownership of the farm business.

Net farm income--gross cash income plus non-cash income (home consumption, an imputed rental value on dwellings) and the value of the change in inventory, minus cash expenses. Represents the accounting profit from current year production.

Major occupation--the occupation in which the senior operator spends 50 percent or more of his or her work time.

List of Tables

Appendix table 1--Farm income statements, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
				Billion dollars		
Cash income:						
1. Cash receipts	170.0	168.8	171.2	175.1	178	172 to 180
Crops 1/	80.1	82.1	84.9	84.5	90	88 to 92
Livestock	89.8	86.7	86.3	90.6	88	84 to 88
2. Direct Government payments	9.3	8.2	9.2	13.4	8	10 to 12
3. Farm-related income 2/	7.6	7.8	7.8	8.8	8	7 to 9
4. Gross cash income (1+2+3)	186.8	184.9	188.2	197.2	194	189 to 201
5. Cash expenses 3/	131.8	131.7	130.8	138.7	144	140 to 148
6. NET CASH INCOME (4-5)	55.1	53.2	57.4	58.5	51	49 to 53
Deflated (1987$) 4/	48.6	45.2	47.5	47.4	40	37 to 41
Farm income:						
7. Gross cash income (1+2+3)	186.8	184.9	188.2	197.2	194	189 to 201
8. Nonmoney income 5/	8.0	7.7	7.8	7.9	8	7 to 9
9. Inventory adjustment	3.4	-0.3	4.3	-3.6	5	-3 to 1
10. Total gross income (7+8+9)	198.2	192.3	200.2	201.4	208	193 to 211
11. Total expenses	151.3	151.2	150.1	158.0	163	160 to 168
12. NET FARM INCOME (10-11)	46.9	41.1	50.1	43.4	45	33 to 43
Deflated (1987$) 4/	41.4	34.9	41.4	35.1	35	24 to 34

F = forecast. Totals may not add due to rounding.
1/ Includes CCC loans. 2/ Income from machine hire and customwork, forest product sales, custom feeding service fees, and other farm sources.
3/ Excludes expenses for onfarm operator dwellings and noncash items such as capital consumption and perquisites to hired labor. 4/ Deflated
by the GDP implicit price deflator. 5/ Includes the value of home consumption of farm products plus imputed rental value of operator dwellings.

Appendix table 2--Average income to farm operator households, 1990-95 1/

Item	1990	1991	1992	1993	1994	1995F
				Dollars per operator household		
Farm operator household income	39,007	37,447	42,911	38,300	39,118	38,800 to 41,600
Farm income 2/	5,742 3/	5,810	7,180	5,125	4,748	4,200 to 5,000
Self-employment	4,973	4,458	5,172	4,710	n/a	n/a
Other	768	1,352	2,008	415	n/a	n/a
Off-farm income	33,265	31,638	35,731	33,176	34,370	34,600 to 36,600
Wages, salaries, and non-farm businesses	24,778	23,551	27,022	23,868	n/a	n/a
Interest, dividends, transfer payments, etc.	8,487	8,087	8,709	9,308	n/a	n/a

F = forecast. n/a = not available. Totals may not add due to rounding.
1/ Data for 1990 are expanded to represent the farm operator households surveyed in the Farm Costs and Returns Survey. Data for 1991-93 are expanded to
represent the number of U.S. farms and ranches. 2/ Includes self-employment income, wages that operators pay themselves and family members to work on
the farm income from renting farmland, and net income from another farm business. 3/ If the additional 350,000 small farms included in the 1991 analysis
were included in the 1990 analysis, the 1990 farm income to the household would be approximately $4,600.

Appendix table 3--Relationship of net cash to net farm income, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
				Billion dollars		
Gross cash income	186.8	184.9	188.2	197.2	194	189 to 201
Minus cash expenses	130.9	131.7	130.8	138.7	144	140 to 148
Equals net cash income	55.7	53.2	57.4	58.5	51	49 to 53
Plus nonmoney income 1/	6.2	7.7	7.8	7.9	8	7 to 9
Plus value of inventory change	3.4	-0.3	4.3	-3.6	5	-3 to 1
Minus noncash expenses	15.4	15.4	15.2	15.3	16	15 to 17
Labor perquisites	0.5	0.6	0.5	0.4	1	0 to 1
Net capital consumption	14.9	14.9	14.7	14.9	15	14 to 16
Capital consumption exc. dwellings	16.3	16.3	16.1	16.3	17	16 to 18
- Landlord capital consumption	1.4	1.4	1.4	1.4	1	0 to 2
Minus operator dwelling expenses	4.1	4.0	4.1	4.0	4	3 to 5
Capital consumption	2.0	1.9	2.2	2.1	2	1 to 3
Interest	0.6	0.7	0.6	0.5	1	0 to 2
Property taxes	0.6	0.6	0.6	0.7	1	0 to 2
Repair and maintenance	0.6	0.7	0.6	0.5	1	0 to 1
Insurance	0.2	0.2	0.2	0.2	*	0 to 1
Equals net farm income	46.9	41.1	50.1	43.4	45	33 to 43

F = forecast.

1/ The value of home consumption and gross rental value of all dwellings.

Appendix table 4--Cash receipts, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
			Billion dollars			
Crop receipts 1/	80.1	82.1	84.9	84.5	90	88 to 92
Food grains	7.5	7.4	8.5	8.2	9	8 to 11
Wheat	6.4	6.3	7.2	7.4	7	7 to 9
Rice	1.1	1.1	1.2	0.8	1	1 to 2
Feed grains and hay	18.7	19.5	19.8	19.3	21	18 to 23
Corn	13.3	14.4	14.5	14.0	15	14 to 16
Sorghum, barley, and oats	2.0	2.1	2.3	2.1	2	1 to 3
Oil crops	12.3	12.7	13.3	13.0	15	13 to 15
Soybeans	10.8	11.0	11.6	11.6	13	11 to 13
Peanuts	1.3	1.4	1.3	1.0	1	1 to 2
Cotton lint and seed	5.5	5.2	5.2	5.0	6	5 to 7
Tobacco	2.7	2.9	3.0	2.9	3	1 to 3
Fruits and nuts	9.4	9.8	10.1	9.9	10	10 to 12
Vegetables	11.6	11.6	11.8	12.7	13	12 to 15
Greenhouse & nursery	8.5	8.9	9.1	9.3	9	9 to 10
Livestock receipts 2/	89.8	86.7	86.3	90.6	88	84 to 88
Red meats	51.9	51.1	48.4	51.4	48	43 to 51
Cattle and calves	39.9	39.6	37.9	40.0	38	35 to 40
Hogs	11.6	11.0	10.1	10.9	10	9 to 10
Sheep and lambs	0.4	0.4	0.5	0.5	1	0 to 1
Poultry and eggs	15.2	15.1	15.5	17.2	17	15 to 19
Broilers	8.4	8.4	9.2	10.4	11	10 to 12
Turkeys	2.4	2.3	2.3	2.4	3	2 to 3
Eggs	4.0	3.9	3.4	3.8	4	2 to 4
Dairy products	20.1	18.0	19.8	19.3	20	18 to 20
TOTAL RECEIPTS	170.0	168.8	171.2	175.1	178	172 to 180

F = forecast. * = less than $500 million. Totals may not add due to rounding.

1/ Includes sugar, seed, and other miscellaneous crops. 2/ Includes miscellaneous livestock and livestock products.

Appendix table 5--Farm production expenses, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
			Billion dollars			
Farm-origin	39.7	38.7	38.9	41.5	42	39 to 43
Feed purchased	20.4	19.3	20.1	21..4	23	20 to 24
Livestock and poultry purchased	14.8	14.3	13.9	14.9	14	12 to 16
Seed purchased	4.5	5.1	4.9	5.2	5	4 to 6
Manufactured inputs	22.0	23.2	22.7	23.2	24	22 to 26
Fertilizer and lime	8.2	8.7	8.3	8.4	9	7 to 10
Pesticides	5.4	6.3	6.5	6.7	7	6 to 8
Fuels and oils	5.8	5.6	5.3	5.4	6	4 to 7
Electricity	2.6	2.6	2.6	2.7	3	2 to 4
Interest	13.4	12.1	11.2	10.8	11	9 to 13
Nonreal estate	6.7	6.0	5.4	5.3	5	4 to 7
Real estate	6.7	6.1	5.8	5.5	6	5 to 7
Other operating expenses	43.1	44.4	43.7	48.3	51	49 to 54
Repair and maintenance	8.6	8.6	8.5	9.2	9	8 to 10
Machine hire and customwork	3.5	3.5	3.8	4.4	5	4 to 6
Marketing, storage & transportation	4.2	4.7	4.5	5.6	7	6 to 8
Labor	14.1	14.0	14.0	15.0	16	14 to 18
Miscellaneous	12.7	13.7	13.1	14.2	12	11 to 15
Other overhead expenses	33.0	32.8	33.7	34.4	35	34 to 37
Capital consumption	18.2	18.2	18.3	18.4	19	17 to 21
Property taxes	5.7	5.6	5.8	6.3	7	6 to 8
Net rent to nonoperator landlords	9.0	8.9	9.5	9.6	10	9 to 11
Total production expenses	151.3	151.2	150.1	158.0	163	160 to 168
Noncash expenses	15.4	15.4	15.2	15.3	16	15 to 17
Labor perquisites	.5	.6	.5	.4	1	0 to 1
Net capital consumption	14.9	14.9	14.7	14.9	15	14 to 16
Capital consumption exc. dwellings	16.3	16.3	16.1	16.3	17	16 to 18
- Landlord capital consumption	1.4	1.4	1.4	1.4	1	0 to 2
Operator dwelling expenses	4.1	4.0	4.1	4.0	4	3 to 5
Capital consumption	2.0	1.9	2.2	2.1	2	1 to 3
Interest	.6	.7	.6	.5	1	0 to 2
Property taxes	.6	.6	.6	.7	1	0 to 2
Repair and maintenance	.6	.7	.6	.5	1	0 to 1
Insurance	.2	.2	.2	.2	0	0 to 1
Cash expenses 1/	131.8	131.7	130.8	138.7	144	140 to 148

F = forecast.

1/ Total production expenses minus noncash and onfarm operator dwelling expenses.

Appendix table 6--Farm income distribution by selected enterprise type, 1992-95 1/

Item	Crops				Livestock			
	Total	Cash grain 2/	Cotton	Fruit/nut/ vegetable	Total	Red meat	Poultry	Dairy
Cash receipts-- Crops				Billion dollars				
1992	78.9	31.4	4.2	19.6	6.0	4.5	0.2	0.9
1993	73.2	20.5	2.8	21.2	11.3	7.4	0.5	2.6
1994F	83	32	5	22	7	5	"	1
1995F	84	31	5	23	7	5	"	1
Livestock								
1992	6.0	4.3	0.1	0.2	80.4	40.0	15.6	21.9
1993	4.2	2.7	"	0.1	86.4	43.8	17.3	22.2
1994F	6	4	*	*	82	40	18	22
1995F	6	4	*	"	80	38	18	21
Direct Government payments								
1992	27.4	20.5	3.8	0.5	3.0	2.4	0.1	0.4
1993	26.1	18.7	1.2	0.2	3.2	2.6	0.1	0.4
1994F	6	4	"	*	2	2	*	*
1995F	7	5	1	*	3	3	"	"
Gross cash income-- 3/								
1992	94.9	42.4	5.3	20.3	93.3	48.4	17.5	23.6
1993	92.1	32.4	3.8	22.6	105.1	56.2	18.7	25.9
1994F	98	42	6	23	96	49	18	24
1995F	101	42	6	24	94	48	18	23
Cash expenses--								
1992	62.7	29.7	3.5	11.8	68.1	37.3	9.3	17.9
1993	62.7	26.7	3.5	13.6	76.0	44.9	9.3	19.2
1994F	68	31	4	14	75	45	11	21
1995F	69	31	4	14	75	45	10	21
Net cash income-- Current dollars 4/								
1992	32.1	12.7	1.8	8.5	25.2	11.1	8.2	5.7
1993	29.4	5.7	0.3	8.9	29.1	11.3	9.5	6.7
1994F	31	11	2	9	21	4	7	3
1995F	32	11	2	10	19	3	7	2
Deflated ($1987)								
1992	29.0	11.9	1.5	7.1	18.8	8.1	5.4	4.7
1993	24.1	10.6	1.3	5.7	17.4	6.3	6.3	3.3
1994F	24	9	1	7	16	3	6	3
1995F	24	8	2	8	14	2	6	2

F = forecast. * = less than $500 million. Numbers are rounded.

1/ Farm types are defined as those with 50 percent or more of the value of production accounted for by a specific commodity or commodity group. 2/ Includes farms earning at least half their receipts from sales of wheat, corn, soybean, rice, sorghum, barley, oats, or a mix of cash grains. 3/ Cash receipts plus Government payments plus farm-related income. 4/ Gross cash income minus cash expenses.

Appendix table 7--Value added by the agricultural sector, 1990-95 1/

Item	1990	1991	1992	1993	1994F	1995F
			Billion dollars			
Crop output	83.1	82.1	88.6	84.2	98	
Cash receipts	80.1	82.1	84.9	84.5	90	88 to 92
Home consumption	0.1	0.1	0.1	0.1	*	0 to 1
Value of inventory adjustmen	2.9	-0.1	3.6	-0.4	8	-3 to -1
Livestock and poultry output	90.3	87.9	87.5	92.0	89	
Cash receipts	89.3	86.7	86.4	91.0	88	84 to 88
Home consumption	0.5	0.5	0.5	0.5	1	0 to 1
Value of inventory adjustmen	0.5	0.7	0.6	0.5	1	0 to 2
Farm-related income	7.6	7.8	7.8	8.8	10	7 to 9
Gross rental value of						
farm dwellings	7.3	7.1	7.2	7.3	8	9 to 11
Equal: Agricultural sector output	188.9	184.1	191.0	188.0	204	
Less: Intermediate consumption outlays	92.0	93.6	92.7	99.4	102	
Farm origin	39.7	38.7	38.9	41.5	42	39 to 43
Feed purchased	20.4	19.3	20.1	21.4	23	20 to 24
Livestock and poultry purchased	14.8	14.3	13.9	14.9	14	12 to 16
Seed purchased	4.5	5.1	4.9	5.2	5	4 to 6
Manufactured inputs	22.0	23.2	22.7	23.2	24	22 to 26
Fertilizer and lime	8.2	8.7	8.3	8.4	9	7 to 10
Pesticides	5.4	6.3	6.5	6.7	7	6 to 8
Fuel and oils	5.8	5.6	5.3	5.4	6	4 to 7
Electricity	2.6	2.6	2.6	2.7	3	2 to 4
Other	30.3	31.7	31.1	34.7	37	49 to 54
Repair and maintenance	8.6	8.6	8.5	9.2	9	8 to 10
Machine hire and customwork	3.6	3.5	3.8	4.4	5	4 to 6
Marketing, storage, and						
transportation	4.2	4.7	4.5	5.6	7	6 to 8
Contract labor	1.6	1.6	1.8	1.9	2	
Miscellaneous	12.4	13.1	12.5	13.7	14	11 to 15
Plus: Net Government transactions	3.2	2.3	3.0	6.8	1	
+Direct Government Payments	9.3	8.2	9.2	13.4	8	10 to 12
-Vehicle registration and						
licensing fees	0.4	0.3	0.4	0.4	1	0 to 1
-Property taxes	5.7	5.6	5.8	6.3	7	6 to 8
Equal: Gross value added	100.1	92.7	101.3	95.4	102	
Less: Capital consumption	18.3	18.2	18.3	18.4	19	
Equal: NET VALUE ADDED	81.9	74.5	83.0	76.9	84	

F = forecast. * = less than 0.5 million. n/a = not available.

1/ Components are from the farm income accounts and include income and expenses related to farm operator dwellings. The concept is consistent with that employed by the Organization for Economic Cooperation and Development.

Appendix table 8--Farm sector rates of return, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
				Percent		
Rate of return on assets	4.3	3.2	4.2	3.0	3.4	2 to 3
Real capital gain on assets	-2.5	-4.0	-1.1	1.6	0.6	-2 to -1
Total real return on assets 1/	1.8	-0.7	3.1	4.6	4.0	0 to 1
Average interest rate paid on debt	9.3	8.3	7.7	7.3	7.2	7 to 8
Real capital gains on debt	5.0	4.1	3.2	2.6	2.8	3 to 4
Real cost of debt 2/	4.3	4.1	4.5	4.7	4.4	3 to 4
Rate of return on equity	3.4	2.2	3.6	2.1	2.7	1 to 2
Real capital gain on equity	-2.0	-3.9	-0.7	2.3	0.2	-3 to -2
Total real return on equity 3/	1.4	-1.7	2.8	4.5	2.9	-2 to 0
Real net return on assets financed by debt 4/	-2.5	-4.9	-1.4	-0.2	-0.3	-3 to -2

F = forecast. Numbers may not add due to rounding.

1/ Rate of return on assets from current income plus rate of return from real capital gains. 2/ Average interest rate paid on debt minus real capital gains on debt. 3/ Rate of return on equity plus rate of return from real capital gains. 4/ Total real return on assets minus the real cost of debt. When the total real rate of return on assets exceeds the total real cost of debt, debt financing is advantageous.

Appendix table 9--Farm business balance sheet, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
				Billion dollars		
Farm assets	848.3	842.4	860.8	888.0	917	912 to 922
Real estate	628.2	623.2	633.1	656.3	682	677 to 687
Livestock and poultry	70.9	68.1	71.0	72.8	74	73 to 75
Machinery and motor vehicles	85.4	85.8	85.6	85.2	88	86 to 90
Crops stored 1/	22.8	22.0	24.1	23.4	26	25 to 27
Purchased inputs	2.8	2.7	3.9	4.2	3	2 to 4
Financial assets	38.3	40.6	43.1	46.2	47	46 to 48
Farm debt	137.4	138.8	138.6	141.9	148	149 to 153
Real estate 2/	74.1	74.5	75.0	76.0	77	77 to 81
Nonreal estate	63.2	64.3	63.6	65.9	71	70 to 72
Farm equity	710.9	703.6	722.2	746.1	769	760 to 770

F = forecast.

1/ Non-CCC crops held on farm plus value above loan rate for crops held under CCC. 2/ Includes CCC storage and drying Facility Loans.

Ratios	1990	1991	1992	1993	1994F	1995F
			Ratio			
Liquidity ratios:						
Farm business debt service coverage 1/	2.35	2.32	2.51	2.55	2.2	2 to 3
Debt servicing 2/	0.15	0.15	0.14	0.14	0.14	0.1 to 0.2
Times interest earned ratio 3/	4.93	4.87	6.01	5.58	4.0	3 to 4
			Percent			
Solvency ratios:						
Debt/asset 4/	16.2	16.5	16.1	16.0	16.1	16 to 17
Debt/equity 5/	19.3	19.7	19.2	19.0	19.2	19 to 21
Profitability ratios:						
Return on equity 6/	3.4	2.2	3.6	2.1	2.7	1 to 2
Return on assets 7/	4.3	3.2	4.2	3.0	3.4	2 to 3
Financial efficiency ratios:						
Gross ratio 8/	70.5	71.2	69.5	70.3	73.1	72 to 74
Interest to gross cash farm income 9/	6.8	6.2	5.6	5.2	5.9	6 to 7
Asset turnover 10/	22.3	21.9	22.1	22.6	19.8	18 to 20
Net cash farm income to debt 11/	43.5	38.1	43.8	38.3	38.1	37 to 39

F = forecast.

1/ Assesses the ability of farm businesses to repay interest and principal associated with farm business debt from net cash farm income. Higher values indicate a relatively better cash position. 2/ Indicates the proportion of gross cash farm income needed to service debt. Lower values indicate a relatively better cash position 3/ Focuses on the ability to meet interest payments out of net farm income. A higher value of the times interest-earned ratio indicates that net farm income covers more interest expense and that operator equity is less exposed to risk. 4/ Indicates the relative dependence of farm businesses on debt and their ability to use additional credit without impairing their risk-bearing ability. 5/ Measures the relative proportion of funds provided by creditors (debt) and owners (equity. 6/ Measures the per dollar returns to equity capital employed in the farm business from current income. 7/ Measures the per dollar return to farm assets from current income. 8/ Gives the proportion of gross cash farm income absorbed by cash productionexpenses. The higher the value of the ratio, the less efficient the farm sector is considered to be. 9/ Gives the proportion of gross farm revenue absorbed by interest payments. Higher values indicate a relatively fixed expense structure and less flexibility in meeting other cash expenses as they arise. 10/ Measures the gross cash farm income generated per dollar of farm assets. The higher the value of the ratio relative to similar sized operations, the more efficiently the farm business uses its assets. 11/ Reflects the strain placed on cash-flow to retire debt. The lower the value, the greater the stress placed on farm earnings that remain after all payments necessary to retire farm debt on schedule have been made.

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